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United States
Circuit Court of Appeals
For the Ninth Circuit.

Transcript of Record.

(IN TWO VOLUMES.)

LOS ANGELES GAS AND ELECTRIC CORPORATION,
a Corporation,

Plaintiff in Error,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY,
a Corporation,

Defendant in Error.

VOLUME I.

(Pages 1 to 416, Inclusive.)

Upon Writ of Error to the United States District Court of the
Southern District of California,
Southern Division.

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NO. 2159

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Southern Division.

INDEX OF PRINTED TRANSCRIPT OF RECORD.

[Clerk's Note: When deemed likely to be of an important nature, errors or doubtful matters appearing in the original certified record are printed literally in italic; and, likewise, cancelled matter appearing in the original certified record is printed and cancelled herein accordingly. When possible, an omission from the text is indicated by printing in italic the two words between which the omission seems to occur. Title heads inserted by the Clerk are enclosed within brackets.]

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WARD CHAPMAN, Esq., 315 Coulter Bldg.,
Los Angeles, California.

*In the United States Circuit Court of Appeals,
Ninth Judicial Circuit.*

LOS ANGELES GAS AND ELECTRIC CORPO-
RATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COM-
PANY, a Corporation,

Defendant.

Writ of Error.

The President of the United States, to the Honorable, the Judge of The District Court of the United States in and for the Southern District of California, Southern Division, Greeting:

Because, in the records and proceedings, and also in the rendition of the judgment of a plea which is in the District Court before you, between the Los Angeles Gas and Electric Corporation, a corporation, plaintiff in error, and The Western Gas Construc-

2 Los Angeles Gas and Electric Corporation

tion Company, a corporation, defendant in error, a manifest error has appeared, to the great damage of said Los Angeles Gas and Electric Corporation, a corporation, plaintiff in error, as by its complaint appears, we being willing that the error, if any has been made, should be duly corrected, and full and speedy justice done to said party aforesaid, in this behalf do command you if judgment therein be given under your seal, distinctly and openly that you send the records and proceedings aforesaid and all things concerning same, to the United States Circuit Court of Appeals for the Ninth Circuit, together with this writ, so that you have the same at the City of San Francisco, in the State of California, on the 23d day of April, 1912, in the said Circuit Court of Appeals to be then and there held, that the records and proceedings aforesaid being inspected, the said Circuit Court of Appeals may cause further to be done therein, to correct that error, what of right and according to the laws and customs of the United States should be done.

Witness the Honorable EDWARD D. WHITE,
Chief Justice of the United States, this 25th day of
March, 1912.

[Seal] WM. M. VAN DYKE,
Clerk of the District Court of the United States of
America, in and for the Southern District of
California.

By Chas. N. Williams,
Deputy Clerk.

The above writ of error is hereby allowed.

OLIN WELLBORN,
Judge.

I hereby certify that a copy of the within writ of error was on the 25th day of March, 1912, lodged in the Clerk's office of the said United States District Court, in and for the Southern District of California, Southern Division, for the said defendant in error.

WM. M. VAN DYKE,
Clerk of the United States District Court, Southern
District of California.

By Chas. N. Williams,
Deputy Clerk.

[Endorsed]: C. C. No. 1558. In the United States Circuit Court of Appeals, Ninth Judicial Circuit. Los Angeles Gas and Electric Corporation, a Corporation, Plaintiff, vs. The Western Gas Construction Company, a Corporation, Defendant. Writ of Error. Filed March 25, 1912. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk.

*In the United States Circuit Court of Appeals,
Ninth Judicial Circuit.*

LOS ANGELES GAS AND ELECTRIC CORPO-
RATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COM-
PANY, a Corporation,

Defendant.

Citation on Writ of Error.

The President of the United States to The Western Gas Construction Company, a Corporation, and to Oscar Trippet, Esq., and Ward Chapman, Esq., Its Attorneys, Greeting:

You are hereby cited and admonished to appear at the United States Circuit Court of Appeals for the Ninth Circuit to be held at the City of San Francisco, in the State of California, within thirty days from the date of this writ, pursuant to the writ of error filed in the Clerk's office of the District Court of the United States in and for the Southern District of California, Southern Division, in that certain action wherein the Los Angeles Gas and Electric Corporation, a corporation, is plaintiff in error, and you are defendant in error, to show cause, if any there be, why the judgment in said writ of error should not be corrected and speedy justice should not be done to the parties in that behalf.

Witness the Honorable EDWARD D. WHITE, Chief Justice, Supreme Court of the United States of America, this 25th day of March, A. D. 1912, and of the Independence of the United States, the 136th.

OLIN WELLBORN,
United States District Judge in and for the Southern District of California, Southern Division.

Service of the within citation on writ of error admitted this 25th day of March, 1912.

OSCAR A. TRIPPET,
WARD CHAPMAN,
Attorneys for Defendant.

[Endorsed]: C. C. No. 1558. In the United States Circuit Court of Appeals, Ninth Judicial Circuit. Los Angeles Gas and Electric Corporation, a Corporation, Plaintiff, vs. The Western Gas Construction Company, a Corporation, Defendant. Citation on Writ of Error. Filed Mar. 26, 1912. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk.

In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant.

Complaint for Damages.

Comes now the plaintiff in the above-entitled action, and for cause of action against the defendant herein alleges:

I.

That the plaintiff is now and ever since the 22d day of June, 1909, has been a corporation organized and existing under and by virtue of the laws of the State of California, and it is now and has been at all times since said 22d day of June, 1909, a citizen of the State of California, and an inhabitant of the City of and County of Los Angeles, State of California, and its principal place of business is, and has been at all times since said 22d day of June, 1909,

6 *Los Angeles Gas and Electric Corporation*

in said City of and County of Los Angeles, State of California, in the Southern Division of the Southern District of the Ninth Circuit of the United States, and plaintiff is now, and has been at all times since said 22d day of June, 1909, engaged in the business of generating, manufacturing, and supplying gas and electricity to said city and vicinity, and to the [2*] inhabitants thereof, as the successor in interest of the Los Angeles Gas and Electric Company.

II.

Los Angeles Gas and Electric Company is now, and ever since the 29th day of March, 1904, has been, a corporation organized and existing under and by virtue of the laws of the State of California, and it is and was at all times herein mentioned a citizen of the State of California, and an inhabitant of the City of and County of Los Angeles, State of California, and its principal place of business is and was at all said times in said City of and County of Los Angeles, State of California, in the Southern Division of the Southern District of the Ninth Circuit of the United States, and was actively engaged in the business of generating and supplying gas and electricity to the City of Los Angeles and its inhabitants until the first day of August, 1909, at which time it ceased to operate any plants in the State of California.

III.

That the defendant is now, and was at all times herein mentioned, a corporation duly organized and existing under and by virtue of the laws of the State

*Page-number appearing at foot of page of original certified Record.

of Indiana, and that it is a citizen of the State of Indiana, and an inhabitant of, and its principal place of business is at, Fort Wayne, in Allen County, in the State of Indiana, and that defendant was at all times mentioned herein, and is now, doing business in the County of Los Angeles, State of California.

[3]

IV.

That at all times herein mentioned the defendant was, and still is, engaged in the business of manufacturing, selling and installing coal and water gas apparatus, including Extended Carburetter Super-heater Water Gas Apparatus, to be used in gas plants for the purpose of producing and generating commercial gas.

V.

That upon the 8th day of April, 1907, the Los Angeles Gas and Electric Company, before mentioned, was desirous of purchasing a Water Gas Apparatus for the purpose of increasing the working capacity of its plant situated in the City of and County of Los Angeles, State of California, for the production and generation of gas, with the use of lamp-black, a by-product of its plant, for fuel; that the defendant was fully informed of the needs and requirements of the said Los Angeles Gas and Electric Company in this respect, and the character of its plant and needs, and the purpose for which it desired to purchase such Water Gas Set, and defendant thereupon proposed to the Los Angeles Gas and Electric Company to manufacture, install and sell to the said Los Angeles Gas and Electric Company,

8 *Los Angeles Gas and Electric Corporation*

an Extended Carburetter Superheater Water Gas Apparatus, of 2,700,000 to 3,000,000 cubic feet of gas per twenty-four (24) hours day capacity, to be used by the said Los Angeles Gas and Electric Company for the production and generation of gas, which proposal was in writing, addressed to the said Los Angeles Gas and Electric Company, and dated April 8th, 1907, and is hereinafter set forth. [4]

VI.

That the Los Angeles Gas and Electric Company, solely by reason of each and every one of the representations and guaranties contained in said written proposal, hereinafter set forth, and relying thereupon, did accept defendant's said proposal and did thereupon enter into a written contract, in the City of Los Angeles, County of Los Angeles, State of California, with the defendant for the manufacture, installation, and sale by defendant of one 13'-0" x 12'-6" x 12'-0" Extended Carburetter Superheater Water Gas Apparatus, to be manufactured and installed by defendant at the plant of the Los Angeles Gas and Electric Company in the City of Los Angeles, County of Los Angeles, State of California, within five (5) months from date; defendant's said written proposal, dated April 8th, 1907, and defendant's specifications number 1389, hereinafter set forth, forming part of said contract, the whole of said contract being in words and figures as follows, to wit: [5]

[Proposal by the Western Gas Construction Company.]

"THE WESTERN GAS CONSTRUCTION CO.

Fort Wayne, Ind. April 8th, 1907.

Los Angeles Gas and Electric Co.,
Los Angeles, California.

Gentlemen:—

Referring to our proposal of gas apparatus and machinery in accordance with our specifications No. 1389, dated February 5th, 1907, specifying generally One 13'-0" x 12'-6" x 12'-0" Extended Carburetter Superheater Water Gas Apparatus, we beg to state that this apparatus is designed to have a capacity from two million eight hundred thousand to three million two hundred thousand cubic feet per day of twenty-four hours, with the use of good Anthracite coal or Gas House coke. With the use of lamp-black we guarantee that the apparatus will have a capacity of two million seven hundred and fifty thousand to three million cubic feet per day of twenty-four hours, using dry lamp-black.

We guarantee to make a good commercial gas, well fixed and non-condensable, of from twenty to twenty-two candle-power at the above rate per day, using not more than thirty-two pounds of dried lamp-black, or thirty-five pounds of lamp-black containing not more than 10% moisture, per thousand cubic feet of gas made.

We further guarantee that in the making of the above gas not more than four and one-half gallons of California Crude Oil of seventeen degrees

Baume, or over will be used per thousand cubic feet made.

We further agree that we will have the apparatus installed and in working order within five months from the date of this contract. In making the above agreement the Gas Company will be expected to aid our operators in fulfilling guarantee in so far as he may require modification of blast, dry steam, etc. This part of the machinery not being installed by us and consequently not under the direct supervision of our operator.

The apparatus specified we agree to furnish and we guarantee to secure the above stated results, for the sum as stated in our letter of February 9th, \$32,729.00, with an additional [6] price for floor of \$2,965.00 extra. You are to unload and place the machinery in your yard at convenient point for our erector to get at same. If you desire us to do the unloading from your switch, we will do so for the additional price of \$250.00.

We are enclosing regular contract, covering the above work in duplicate, one copy of which you will kindly sign and return to us, retaining the other for your own use.

Thanking you for your courtesy and assuring that we will give you a first class apparatus in every respect, we are

Yours truly,

THE WESTERN GAS CONSTRUCTION CO.,

Per B. S. PEDERSON, Agt.

BSP/JKT. [7]

[**Agreement Between the Western Gas Construction Company and Los Angeles Gas and Electric Company.]**

THE WESTERN GAS CONSTRUCTION CO.
Main Office)

and Works) Fort Wayne, Indiana.

This agreement, made the eighth day of April, in the year one thousand nine hundred and seven, by and between the Western Gas Construction Company of Fort Wayne, Ind., a corporation duly organized under the laws of the State of Indiana, party of the first part (hereinafter designated the "Contractor"), and Los Angeles Gas and Electric Company, Los Angeles, California, party of the second part (hereinafter designated the "Owner");

WITNESSETH, that the Contractor, in consideration of the covenants and agreements contained herein on the part of the Owner, does covenant, promise and agree with the said Owner, in manner following, that is to say:

1. Any part or portion of the Specifications which are struck out are not included in this agreement.

2. The Contractor shall and will well and sufficiently furnish, ERECT and finish, to the reasonable satisfaction of the Owner, subject to strikes, fires, freight blockades, all the Gas Apparatus and Machinery described and specified in its specification. No. 1389, comprising pages one to eleven inclusive, dated February 5th, 1907, the original being herewith delivered to and receipt thereof acknowledged by the Owner, and whereof an impression or dupli-

12 Los Angeles Gas and Electric Corporation

cate copy is retained by the Contractor, generally comprising the following apparatus:

One 13'-0" x 12'-6" x 12'-0" Extended Carburetter Superheater Water Gas Apparatus with charging floor for same.

3. The apparatus shall be accepted upon completion in accordance with the Specification.

4. The owner will receive and properly store at the expense of the Contractor all materials which may arrive before the erectors of the Contractor, will hold contractor harmless for damage to materials by fire or other causes, and afford all [8] necessary protection from depredation of any sort until acceptance of the apparatus, will use proper precaution to prevent the access of unauthorized persons to the premises where said work is being done.

5. The Owner shall furnish and provide the buildings inclusive of the foundations, all yard and other excavations, fillings and refillings, pavings, floors, openings in walls and roofs, flashings for stacks, etc., all necessary steam, oil, water and drain connections at respectively convenient points for the several apparatus, all connections and parts of the gas plant not specified in the before mentioned specification, in all respects suitable and sufficient, also openings or doors in the several rooms of suitable size to allow the apparatus of the Contractor to pass.

6. The owner shall have the building in proper condition for the erection of the Apparatus on its arrival otherwise pay Contractor for expenses necessarily incurred through such delay. Not during erection delay the progress of the work, otherwise

pay for time men are idle, and travelling expenses, (if necessary to leave work and return later to continue or complete same,) including any other expenses necessarily incurred through such delay.

7. It is hereby mutually agreed between the parties hereto, that the sum to be paid by the Owner to the Contractor for the proper execution of the provisions of this agreement shall be Thirty-five Thousand Six Hundred and Ninety-four Dollars (\$35,694.00), lawful money of the United States, payable at par in Fort Wayne, Indiana, as follows:

Fifty per cent of the contract price in proportion as material is shipped or delivered to the premises of the Owner; twenty-five per cent of the contract price in such sums as may be called for from time to time during the progress of the work (said amount to include all payments for account of freights, [9] advances to erectors and other sundry charges prior to the completion of the Apparatus) and the balance of the contract price thirty-five days after acceptance of apparatus as herein provided.

8. There are no understandings promises or agreements on the part of the Owner or Contractor outside of this contract and specifications noted above, together with terms, conditions, and limitations therein contained excepting,

Letter of Contractor to Owner dated April 8th, to be and is hereby made a part of this contract.

IN WITNESS WHEREOF, the said parties for themselves, their heirs, executors or assigns have signed this agreement in duplicate, by their agents

14 *Los Angeles Gas and Electric Corporation*

thereunto duly authorized, as of the day and year
first above written.

**THE WESTERN GAS CONSTRUCTION
COMPANY,**

By B. S. PEDERSEN.

**LOS ANGELES GAS AND ELECTRIC
COMPANY,**

By T. P. McCREA,
Purchasing Agent.

Witnesses for the Contractor,

J. K. TEETER.

Owner, C. A. LUCKENBACH. [10]

**[Specifications for Gas Apparatus and
Machinery.]**

Specifications

For

Gas Apparatus and Machinery.

By

THE WESTERN GAS CONSTRUCTION CO.,
Fort Wayne, Indiana.

For

**THE LOS ANGELES GAS AND ELEC.
COMPANY**

Los Angeles, Cal.

Consisting Generally of

One 13' 0" x 12' 6" x 12'-0" Diameter.

Patented Extended Carburetter Super-
heater Design of Water Gas Apparatus.

NUMBER

1389

DATE

2-5-07. [11]

SPECIFICATIONS

FOR 13' 0" x 12' 6" x 12' 0" DIAMETER
PATENTED.

EXTENDED CARBURETTER SUPERHEATER
DESIGN OF WATER GAS APPARATUS
FOR THE LOS ANGELES GAS AND ELECTRIC
CO.

LOS ANGELES, CALIF.

BY THE WESTERN GAS CONSTRUCTION
COMPANY,
FORT WAYNE, IND.

2-5-07.

In the following specifications, the Los Angeles Gas & Electric Company of Los Angeles, Cal., will be referred to as the Owner, and the Western Gas Construction Company of Fort Wayne, Ind., as the Contractor.

GENERATOR.

SHELL:

The generator shell will be 13' 0" in diameter by 20' 0" high inside, made of 5/16" steel. Bottom head will be constructed of two half heads of 3/8" steel, made with riveted butt and strap joint, and will be

connected to shell by means of 3" x 3" x 5/16" angle iron ring, riveted to head and shell. This angle iron ring will be properly connected at joints by means of butt straps.

Top head will be constructed of two half heads of 5/16" steel, connected together by means of butt and strap joint, and will be bolted to a 3" x 3" x 5/16" steel angle ring riveted around top of shell. Proper butt straps will be provided for this angle ring. Top head will be stiffened by means of two 8" I beams, riveted to head. The vertical seams of the two lower courses will be double riveted.

NOZZLES:

There will be provided three flanged and faced nozzles, riveted to shell; one 24" for blast connection, one 42" in diameter at top, and one 20" diameter at bottom for combination valve connection for up and down runs. Top head will have one flanged and faced nozzle bolted to center, carrying removable door frame and charging door fitted with track wheels, independent track, cottar bar and screws complete.

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DOORS:

Four grate cleaning, and two heavy ash pit doors, each 16" x 24," uniformly spaced for access to grate and ash pit of shell, will be bolted to shell at proper places; doors and frames faced and scraped to make tight self-sealing joints. Doors will have perforated steel protecting plates, and grate openings will be

fitted with cast iron liners provided with removable cast iron blocks.

DIVIDED BLAST GRATE:

The generator will be provided with our divided blast grate design, Patent No. 721,695, insuring UNIFORM distribution of air impinging directly against the entire bottom surface of the fuel bed. In the fire brick linings below the grate will be placed a cast iron blast box, securely bolted to shell and to outside blast nozzle. Five hollow bearing bars will be connected by bolted flanged openings to the blast box, the other ends of these bearing bars resting on expansion brackets secured in the lining. Grate bars of 2" square steel will be held in position, uniformly spaced 4" centers by protecting distance lugs on top of bearing bars. The hollow bearing bars are provided with individual blast ports, through which the divided air blast is directed against the fuel bed between the grate bars at any desired pressure, maintaining a uniform fire. A column with brackets will be provided which will support the centers of the middle three hollow bearing bars, relieving them from the strain consequent upon the weight of the grate bars and fuel.

STEAM DISTRIBUTORS:

The steam supply will be divided by means of special distributors placed between bearing bars and connected with the main steam supply pipe, insuring uniformity of steam supply over the entire bottom of the fuel. The divided blast and steam distribution insure a material increase in capacity of the generator, more complete combustion of fuel, fuller decom-

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position of steam, and less labor in cleaning fire.

Steam connection for "up runs" will be made to the special steam distributors below the grate, and for "down runs" the connection will be made to a hollow steel casting bricked in lining above the fuel, arranged to properly distribute the steam over the top of the fire.

CHARGING DOOR:

The top charging door will be of our special design fitted with steel perforated protecting plate, and operated on floor track. A $1\frac{1}{4}$ " sight cock will be fitted to the door for observation of heats. The door will be fitted to a removable seat or frame.

DOUBLE LINING:

The generator will have a double lining 17" thick consisting of a face or inner lining of special quality fire brick 9" wide, backed by a lining or circle brick 6" wide, all carefully laid to break joints.

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A lagging consisting of 2" non-conducting asbestos material will be tamped between lining and shell. The generator will be lined in such a manner as to permit of the removal for repairs of the inside circle of lining, to a height of several feet above the grate bars, without disturbing the outer circle or the top lining of the generator. Our special, heavy tile grate door linings will be provided, giving access to the entire surface of the grate.

COMBINATION VALVE CONNECTIONS. CONNECTIONS:

The generator and carburetter will be connected by means of our hydraulic operated combination valve system, consisting of one 36" valve of our water-cooled body and disc designed for "up runs," and one 20" valve of our ball valve design for "down runs," which combination provides for making up and down runs or reverse steam operation in generator.

REVERSE SYSTEM:

The valves will be operated simultaneously by means of our hydraulic combination valve shifting arrangement mounted between the valves under the floor, leaving operating floor unobstructed, as the hydraulic cylinder is situated below the main valve. The water cooled valve fitted in the connection between generator and carburetter is so constructed that both body and disc may be constantly cooled by water circulating through same, and the stem of the valve is not exposed to the blast gases in either position of the valve. The main valve connection will be lined with special tile about 3" thick.

CARBURETTER.

The carburetter will be of our extended carburetter design, with take-up flue, patent No. 790,296, 12' 6" in diameter x 27' 0" high inside. Shell will be made with the two lower courses 5/16" and the remaining courses 1/4" steel. Bottom head will be constructed of two half depth of 3/8" steel made with riveted butt and strap joint, and will be connected to the shell by means of 3" x 3" x 5/16" steel angle ring riv-

eted to head of shell. This steel angle ring will be properly connected at joints by means of a butt strap.

Top head will be constructed of two half heads of 5/16" steel, connected together by means of butt and strap joint, and will be bolted to a 3" x 3" x 5/16" steel angle ring riveted around top of shell. This angle iron ring will be properly connected at joints by means of butt straps. Top head will be properly stiffened by means of two 8" I beams riveted to head. The vertical seams of the two lower courses will be double riveted.

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NOZZLES:

One special blast box with 14" removable disc valve for blast connection; one 42" and 20" diameter nozzle for combination valves and one 36" x 48" nozzle for connection to bottom of superheater will be riveted to shell; nozzles except blast and down run nozzles, will be tile lines. One 24" nozzle with blank flanges and sight cock will be provided in top.

DOORS:

Seven cleaning doors, four 18" x 30" and three oval will be provided, three on each side of the shell at proper intervals for convenient access and for removal of checker brick; also a special cleaning door in bottom of ash pocket of uptake flue. Doors will be oval and rectangular, self-sealing, heavy pattern hinged design, with swinging cottar bars and screws for oval doors, the others being bolted to frame and

equipped with lifting handles.

DOUBLE LINING:

The Carburetter will have a double lining 12" thick consisting of an inner lining of special fire brick 6" wide, backed by an outside lining 4½" wide carefully laid to break joints. A 1½" asbestos material lagging will be solidly tamped between the outside course and the shell. The checker brick will be supported by means of heavy open, center supported, fire brick tile arch, thus relieving the shell from undue strain.

CARBURETTER UP-TAKE FLUE:

The internal up-take flue will be constructed of special lock joint tiles built into the lining. Lower end of the flue forms a collecting chamber for ashes and cinders blown over from the generator fuel bed, preventing their collection on carburetter checker brick. A cleaning door permits the periodical removal of ashes, etc., while the carburetter being 6" larger in diameter, still affords a greater net cross sectional area of checker brick than the superheater.

DIVIDED BLAST INLET:

Immediately above the top of uptake flue, and at right angles to same are located the special blast ports connecting with blast box and valve, insuring perfect and uniform distribution of combustion over top of carburetter checker brick.

OIL VAPORIZING CHAMBER:

The top of the carburetter forms a vaporizing and mixing chamber, into which the oil will be sprayed by our adjustable injectors, and partly vaporized and

mixed with the entering water gas before coming into contact with the hot checker brick; this arrangement forming our improved carburetter design for double superheater apparatus, Patent No. 529,269.

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The adjustable injectors will be recessed in special tile tubes, built in the side lining of vaporizer by which they are removed and protected from the direct action of the heat.

Carburetter will be fitted with three $1\frac{1}{4}$ " sight cocks at proper places for the observation of heats.

SUPERHEATER.

The superheater will be of our extended superheater design, 12' 0" in diameter, x 35' 0" high inside. Shell will be made of $\frac{3}{8}$ ", $\frac{5}{16}$ " and $\frac{1}{4}$ " steel, and vertical seams of three lower courses of shell will be double riveted. Bottom head will be constructed of two half heads of $\frac{3}{8}$ " steel, made with riveted butt and strap joint, and will be connected to shell by means of 3" x 3" x $\frac{3}{8}$ " angle iron ring, riveted to head and shell. This angle iron ring will be properly connected at joints by means of butt straps.

Top head will be constructed of two half heads of $\frac{5}{16}$ " steel, connected together by means of butt and strap joint, and will be bolted to a 3" x 3" x $\frac{5}{16}$ " steel angle ring riveted around top of shell. Proper butt straps will be provided for this angle ring. Top head will be stiffened by means of two 8" I beams, riveted to head.

NOZZLES:

One blast nozzle for 12" blast valve and one 36" x 48" nozzle, tile lined, for connection to carburetter will be riveted to shell.

DOORS:

Ten 18" x 30" and two oval cleaning doors will be fastened, six to each side of shell at proper intervals for convenient access and for the removal of checker brick. They will be of self-sealing, heavy pattern hinged design, with swinging cottar bar and screw for oval doors, the others being bolted to frames and equipped with lifting handles.

The stack tee on top of head will be 36" diameter tile lined to 30" with side branch 36" tile lined to 30" diameter for the outlet pipe connection to seal.

STACK VALVE:

The 30" diameter stack valve will be bolted on top of stack tee, and will be operated by means of hinged rack and pinion floor stand, with polished hand wheel, and will be provided with hydraulic operating device of our special design as described under "Valves and Operating Mechanism."

LINING:

The superheater will have a double lining 12" thick,

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consisting of an inner lifting of special fire brick 6" wide, backed with a lining of circle brick 4½" wide, all carefully laid to break joints. A 1¼" thick asbestos lagging will be solidly tamped between the outside course and the shell.

The checker brick will be carried by means of our open center supported heavy tile arches, relieving the shell from undue strain.

The superheater will be fitted with two $1\frac{1}{4}$ " sight cocks, at proper places for observation of heats.

STACK:

The stack will be about 48" in diameter, made of #10, gauge steel and of proper length to reach through the roof, lower end flared to about 60" diameter and supported from the roof or the top of superheater by means of steel braces.

SEAL.

SHELL:

Seal will be 108" in diameter x 60" high inside, made of 1.4" steel. Bottom head will be $5/16$ " flanged and riveted to shell. Top head of $5/16$ " steel properly stiffened with two 6" I beams, and bolted to a 3" x $2\frac{1}{2}$ " x $5/16$ " steel angle ring riveted around top of shell. Seal will be placed on top of main floor beams.

CONNECTIONS:

Inlet pipe will be 30" diameter enlarged inside of seal to 34" diameter, and outlet pipe 30" in diameter enlarged to 34" bolted respectively to top and bottom heads.

CLEANING BOX:

Our special design of cleaning out box with removable cover will be provided and bolted to top of the inlet pipe of the seal to facilitate cleaning of the superheater off-take pipe and preventing of carbon from filling the seal when cleaning.

OVERFLOW:

Our special box with 6" adjustable overflow will be riveted to side of seal, and a 4" pipe flange will be riveted to bottom of seal to which a 4" valve will be attached to receive drain pipe connection to main seal or scrubber drain tank.

DOORS:

Two 11" x 17" self-sealing manholes, frames and covers with cottar bars and screws will be riveted to shell. One 16" self-sealing cleaning door will be bolted to top head of shell above outlet for access to outlet pipe.

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OVERFLOW TANK.

The overflow tank will be 30" inside diameter x 54" deep, made of 1/4" steel. Tank will be hung from operating floor projecting 6" above the floor and provided with 6" overflow pipe. Necessary 6' overflow piping for draining into the scrubber drain tank, connection with drain from seal will be provided to suit requirements.

PIPE CONNECTION.

Cast iron flange pipe connections will be provided complete of sizes specified, connecting all apparatus to outlet nozzle of seal. (Connections for scrubber specified after this apparatus.) The connection of off-take pipe from stack tee to seal clean-out box will be provided with special cross fitted with two self-sealing cleaning covers and hinged cottar bars and screws.

BLAST PIPE CONNECTIONS.

All blast piping, together with suitable branches up to the automatic blast relief valves on generator and superheater and to the disc blast valve on carburetter is to be provided by the owner. If desired, however, the Contractor will submit a separate price for this work upon receipt of necessary information.

BLAST RELIEF VALVES:

The blast pipe will be connected to generator and superheater blast valves by cast iron flanged elbows; fitted with automatic blast relief valves consisting of spring flopper discs for relief of excessive pressure in blast pipes as well as forming safety vents.

VALVES AND OPERATING MECHANISM.

One set of two quick opening double gate blast valves and one disc valve of sizes specified, will be provided.

The generator and superheater blast valves and stack valve will be operated from neatly finished rack and pinion floor stands with polished wheels, independent of the hydraulic operating equipment specified below.

Carburetter blast valve will be provided with hand-wheel. Top and bottom steam supply to generator will be controlled by means of valves operated from neatly finished double steam stands bolted to the operating floor.

A uniform steam supply to generator is secured by our nozzle gauge arrangement.

SPECIAL HYDRAULIC EQUIPMENT.

Our special hydraulic operating device will be provided for valves for up and down runs, generator and

superheater blast valves and stack valves. This will consist of properly proportioned, direct acting hydraulic lifts, controlled by four-way hydraulic valves which are operated by hand-wheels from neatly

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finished floor stands. These valves will be grouped to permit of complete operation from one position of the operator, or will be arranged in a bank and operated by reversing levers.

AUTOMATIC OIL SUPPLY SYSTEM.

The oil system will be of our direct connected automatic operated arrangement of pump, meter, steam oil heater and injectors, in accordance with our Patent No. 528,872, by which a uniform and constant oil pressure is automatically maintained up to the operating oil valve of the carburetter. Pump to be furnished by Owner.

OIL METER:

One National special oil meter, of sufficient capacity with large vertical dial will be provided and set up in cast iron tray supported on neatly polished floor stands, placed in convenient location on the operating floor, and connected complete with oil pipe system.

OIL HEATER:

One special design, oil tight, steam oil heater 24" in diameter by 72" high, fitted with seamless drawn tubes, will be placed in convenient position in engine room and properly piped to meter, oil pump and oil injectors.

INJECTORS:

Eight removable, patented, adjustable injectors for spraying and automizing the oil into top of the carburetter will be provided. The feed will be regulated through the adjustable needle valve arrangement and the supply will be controlled from the operating valve of main supply pipe.

A live steam connection will also be made for blowing out and cooling the injectors when required, our Patent No. 546,011. Injectors are placed in special tiles inside lining of vaporizing chamber, and protected from the flames.

SMALL PIPING.

Main steam, exhaust, water and oil supply pipes, also drain pipes are to be brought by the Owner to convenient points to within 5' of the respective apparatus to be connected by the Contractor as follows:

STEAM:

Steam connections will be made from such supplies to top and bottom of generator, gauge boards, and oil injector feed pipes.

WATER:

Water connections will be made to the water cooled valve, seal scrubber, condenser, and to the inlets of the fourway hydraulic valves.

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OIL:

Oil connections will be made to meter, heater, and injectors, all in accordance with our improved oil feed system Patent No. 528,872.

DRAINS:

Connections will be made from over-flow tank to main drain connection, or drain wherever located.

PIPE COVERING.

Pipe covering will be furnished for all the hot oil and live steam piping, provided by the Contractor for which sectional magnesia covering with brass bands will be used.

GAUGE BOARD.

One ornamental special design and polished slate pressure board will be mounted on wall of the generator room, in convenient location, fitted with four pressure cups all nickle plated; also three nickle plated Bourdon spring gauges, for indicating the pressure in the oil piping, in the main steam supply pipe line, and also the nozzle pressure of the steam supply to the generator. A differential pressure gauge will also be provided on the gauge board, connected with the top and bottom of the generator for observation of the differential pressure, through the generator fuel bed.

A marine clock will be located immediately below the Bourdon dial gauges.

SCRUBBER.

The scrubber will be 9' 6" in diameter by 24' O" high, shell made of $\frac{1}{4}$ " and $\frac{5}{16}$ ", top and bottom heads of $\frac{3}{8}$ " steel. Top heads will be bolted to steel angle rings riveted around top of shell, and bottom head flanged. The scrubber will be divided into compartments and necessary $2\frac{1}{2}$ " x $2\frac{1}{2}$ " x $\frac{1}{4}$ " angle rings riveted to shell for seven layers of trays, which will be provided for supporting scrubbing material.

Nine 11" x 17" manhole frames with self-sealing doors, and cottar bars; one 30" nozzle for inlet and one 24" nozzle for outlet and one 6" drain flange or nozzle, all faced, will be riveted to shell at proper places. One of the manholes will be placed in top head. Removable water sprays will be furnished with necessary water piping to main supply as specified previously.

CONDENSER.

The water tube condenser will be 9' 6" in diameter x 25' high, containing three hundred and eighty (380) 3" tubes; 22' long. Shell will be made of $\frac{1}{4}$ " and $\frac{5}{16}$ " tank steel; tube heads will be $\frac{7}{16}$ " thick into which the tubes will be properly expanded. Bottom head will be made of $\frac{3}{8}$ " steel flanged, and the top of

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the shell will be stiffened by means of a $2\frac{1}{2}$ " x 3" x $\frac{5}{16}$ " steel angle ring.

Between the tube heads will be arranged three baffle plates for directing the flow of gas at right angles to the tubes.

24" inlet and outlet nozzles, 6" drain nozzles, and two 11" x 17" heavy manhole frames with tap bolted cast iron covers will be riveted to the shell at proper points. Six hand-holes with covers, crabs, bolts and nuts complete will be provided for cleaning immediately above the lower tube head. The bottom and top compartments will be tapped for water connections, which will be connected to the water supply.

DRAIN TANK.

The drain tank for scrubber will be 36" in diameter x 60" deep, made of $\frac{1}{4}$ " steel. Cast iron hub nozzle will be riveted to shell for drain connection and cover in halves will be furnished; drain tank to receive drain pipes from seal and overflow tank, *we* well as drain from scrubber and condenser.

PIPE CONNECTIONS FOR SCRUBBER AND CONDENSER.

Connections from the outlet of seal to the inlet of scrubber will be 30", fitted with one 30" valve. Outlet from scrubber will consist of one 24" flanged nozzle, which will be connected to a 24" flanged nozzle acting as the inlet to the condenser. The condenser outlet will consist of a 24" flanged nozzle, to which will be bolted a 24" angle valve and from this point the owner will continue the piping.

CHARGING FLOOR.

PLATES:

The charging floor will be about 32' x 57'. The Floor will be constructed of checker faced cast iron plates of suitable size to properly fit together and around shells of apparatus:

BEAMS:

Plates will be supported and fitted on 5" transverse I beams, which will be carried on 10" and 8" longitudinal I beams supported on wall and on brackets on shell, all provided and erected by the Contractor.

The whole structure will be designed to carry a safe load of 150 pounds per sq. ft.

STAIRWAY AND RAILING.

The stairway built of 10" channel stringers with

wooden treads, bolted to the stringers will be provided and erected in convenient location for access to the charging floor. Hand rails and standards will be provided for same.

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All exposed openings will be guarded by neat pipe railing supported on pipe standards fastened to the floor.

FIRE TOOLS.

There will be provided one complete set of fire tools to be used in clinkering the generator fires.

SHELL WORK.

All shell work will be free from bucklets and other mechanical defects. All outside edges of sheets will be bevel sheared and joints caulked gas tight. All castings where riveted to shell will be metal to metal, and shell chipped and caulked to cast iron to insure tight work. Rivets in shell will be spaced according to best practice.

GENERAL.

The foregoing specifications are intended to include all work and material of every description necessary to complete one double superheater set of water gas apparatus, as intended by these specifications in a thorough and workmanlike manner, whether specifically mentioned or not.

The owner will furnish the necessary foundations, openings and flashings in roof as well as provide necessary openings in walls for pipes and admission of all apparatus, without expense to the Contractor.

The Contractor will furnish complete foundation plans for apparatus and necessary drawings, if desired, for buildings.

The Gas Company will unload and cart all material from nearest Railroad switch on arrival and deliver same to the Contractor, outside of generator house.

On completion of the plant all shell and pipe will receive a fine coat of metallic paint, and everything shall be left in a neat and workmanlike manner.

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VII.

That thereafter the defendant manufactured at its plant in Fort Wayne, Indiana, delivered and installed at the plant of the Los Angeles Gas and Electric Company, in the City of Los Angeles, California, an Extended Carburetter Superheater Water Gas Apparatus, purporting to be in accordance with the contract, hereinbefore set forth, and the Los Angeles Gas and Electric Company paid the defendant on account of the purchase price under said contract, the sum of Seventeen Thousand Eight Hundred and Forty-seven Dollars (\$17,847.00), in accordance with the provisions contained in said contract for the payment of fifty (50%) per cent of purchase price upon arrival of materials, Fifteen Thousand Dollars (15,000.00) of said sum being paid by the Los Angeles Gas and Electric Company to defendant on September 1, 1907, and Two Thousand Eight Hundred Forty-seven Dollars (\$2,847.00) on October 22, 1907;

further the said Los Angeles Gas and Electric Company paid on account of the defendant, for freight on said apparatus, the sum of Three Thousand Nine Hundred Thirty-eight and 49/100 Dollars (\$3,938.-49), in accordance with the provisions of said contract for the payment of freight; further, the said Los Angeles Gas and Electric Company paid on account of the defendant, for expressage on said apparatus, the sum of One Hundred One and 30/100 Dollars (\$101.30), in accordance with the provisions contained in said contract for the payment of expressage; further, the Los Angeles Gas and Electric Company, on the 20th of February, 1908, paid on account of the defendant, for hauling of a part of said apparatus, the sum of Two Dollars (\$2.00), in accordance with the provisions of said contract for the payment of said hauling; [23] further, the Los Angeles Gas and Electric Company advanced to defendant's authorized agent and "erector," upon demand made by said agent and "erector" for money necessary to prosecute the setting up and installation of said apparatus, the sum of Four Thousand Nine Hundred Thirty-four and 66/100 Dollars (\$4,934.-66), in accordance with the provisions contained in said contract for payment to said "erector" of such sums as he might need. That the defendant has at all times retained all of said money paid and advanced to the defendant by the Los Angeles Gas and Electric Company as aforesaid.

Further, the Los Angeles Gas and Electric Company, at all times fully and completely performed each and every and all conditions upon its part under

said contract, hereinbefore set forth.

VIII.

That the defendant did, after the installation of its said apparatus, proceed to test and operate same, and the defendant did make two complete tests of its said apparatus. That said apparatus never operated fully or completely or successfully, or in any respect approached, or fulfilled all or any of the guaranties in the contract hereinbefore set forth, during the said tests, but without any fault on the part of the said Los Angeles Gas and Electric Company, said apparatus did at all times during the said tests carried on by defendant, fail to make the quantities and quality of gas, with the economy of fuel or oil set forth in said contract, that said apparatus did at no time during any period [24] of twenty-four (24) hours in either of said tests produce as much as the minimum quantity of gas provided for and guaranteed in said contract; that said apparatus did not at any time during said tests produce gas upon a consumption of thirty-five (35) pounds, or less, of lamp-black containing not more than ten (10) per cent of moisture per thousand cubic feet of gas made, as provided and guaranteed in said contract; that said apparatus did not at any time during said tests produce gas upon a consumption of four and one-half ($4\frac{1}{2}$) gallons or less, of California crude oil of 17 degrees Baume, or over, per thousand cubic feet of gas made, as provided in said contract; that said apparatus at no time during said tests was able to perform, or did perform, according to the said contract, but at all times during said tests said apparatus produced much less

than two million seven hundred and fifty thousand (2,750,000) cubic feet of gas per day of twenty-four (24) hours; that said apparatus did at all times during said tests consume far in excess of thirty-five (35) pounds of lamp-black containing less than ten (10%) per cent of moisture, per thousand cubic feet of gas made; that said apparatus did consume far in excess of four and one-half (4½) gallons of California crude oil of not less than 17 degrees Baume per thousand cubic feet of gas made; that said increased consumption of oil and fuel during said tests greatly increased the cost of production of gas by said apparatus per thousand cubic feet of gas made, over and above what the cost would have been under the guaranteed consumption, set forth in the contract.

That the said gas made by said apparatus during said tests was not "good commercial gas well fixed and non-condensable," [25] but that said gas was at all said times of excessive heat, condensable and not fixed, and contained a great percentage of aqueous vapor and tar substances.

That the generator in said apparatus was during said tests defective in construction, arrangement and plan, in that it was unable to sustain the fire bed to a sufficient height to enable the apparatus to reach the contract gas making capacity, or even approach same, and in that it was unable to bring the entire fuel bed to the proper incandescence for gas making purposes, and in that it was unable to generate sufficient water gas to enable the defendant's apparatus to fulfill the contract guarantees as to gas making capacity.

That defendant also failed to complete said apparatus in accordance with specifications number 1389, provided in said contract, in that defendant failed to equip said apparatus with the "hydraulic operated combination valve system" connecting the generator and carburetter, as specified on page 3 of Specifications Number 1389, but defendant instead thereof, equipped said apparatus with a 36-inch disc valve of water cooled body, and said valve so furnished was to the knowledge of defendant, cracked and useless, and seriously interfered with the operation of said apparatus; in that the defendant failed to complete the "charging floor," and left portions of it unlaid, and other portions loosely fastened; in that the defendant failed to paint the shell and pipe with metallic paint, as provided for on page 11 of the Specifications Number 1389; in that the defendant failed to provide said apparatus with a "divided blast grate," insuring uniform distribution of air impinging directly against the entire bottom surface of the fuel bed; [26] in that defendant failed to equip said apparatus with "special distributors," "insuring uniformity of steam supply"; and in that defendant failed to equip said apparatus with "adjustable injectors" for vaporization of oil in the carburetter.

IX.

That said apparatus was during, and at the completion of said tests, of no value to the Los Angeles Gas and Electric Company, by reason of the failure of said apparatus to perform according to the terms and guarantees of said contract, and its uncompleted

condition, as heretofore set forth, and the said Los Angeles Gas and Electric Company refused at all times to accept said apparatus, and never did accept same, and said apparatus is now, and has been at all times, the sole property of the defendant, and is now and always has been subject to defendant's right to remove and dispose of same.

X.

That the Los Angeles Gas and Electric Company after the aforesaid tests, demanded of the defendant that it return to the said Los Angeles Gas and Electric [27] Company the money so far advanced to it by said Los Angeles Gas and Electric Company under said contract, as hereinbefore set forth, and upon the refusal of the said defendant to return all or any part of the said money, the Los Angeles Gas and Electric Company commenced an action at law on the 24th day of July, 1908, against the defendant herein in the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division, to recover Thirty-five Thousand Fifty and 80/100 Dollars (\$35,050.80) damages from said defendant for the failure to perform the contract hereinbefore set forth. That the defendant was served with a copy of the complaint and summons in said action at law and appeared in said court in response thereto.

XI.

Thereafter, on or about the first day of July, 1909, the defendant inquired of the said Los Angeles Gas and Electric Company if it were possible for the said parties to adjust the controversy existing between

them without litigation, and thereafter, on the 12th day of July, 1909, with the express intent and purpose of finally settling and disposing of the controversy and litigation which had arisen between them as aforesaid, the said Los Angeles Gas and Electric Company and the defendant entered into a contract, executed and delivered in the City of and County of Los Angeles, State of California, in words and figures as follows, to wit: [28]

[Contract Between The Western Gas Construction Company and Los Angeles Gas and Electric Company.]

THIS AGREEMENT made and entered into this 12th day of July, 1909, by and between the Western Gas Construction Company, a corporation of Fort Wayne, Indiana, party of the first part, and the Los Angeles Gas and Electric Company, a corporation of Los Angeles, California, party of the second part.

WITNESSETH: Whereas the parties hereto did on the 8th day of April, 1907, enter into a contract by which the party of the first part herein, agreed to furnish and install at the plant of the party of the second part an Extended Carburetter Superheater Water Gas Apparatus, and

WHEREAS: the said party of the first part did furnish and install at the plant of the party of the second part, an Extended Carburetter Superheater Water Gas Apparatus, and the party of the second part did pay the party of the first part a portion of the contract purchase price therefor, to wit: Twenty-six Thousand Eight Hundred Twenty-three and 45/100 (\$26,823.45) Dollars, and

WHEREAS litigation has arisen between the said parties hereto concerning the question as to whether or not the said Extended Carburetter Superheater Water Gas Apparatus furnished and installed by the party of the first part as aforesaid, was in accordance with said contract, and whether or not the said Apparatus so furnished and installed, could produce the amount of gas guaranteed in said contract, and

WHEREAS, the parties hereto now desire to finally dispose of and settle the controversy which has arisen between them concerning said apparatus,

NOW, THEREFORE, BE IT AGREED:

1. That the party of the first part will at once proceed, and with as much expedition as possible make such changes in said apparatus as it may desire for a preliminary experiment with said Apparatus for the determination of the character of changes or alterations it may desire to make preparatory to a final test of said apparatus; that the said party of the first part will immediately after said preliminary experiment, and with as much expedition as possible, make such changes in said Apparatus as it may desire for the final test, which changes shall in part consist of—

1st. A new generator or generators, in place of the present generator now a part of said set.

2nd. Provide ample means for the collection and easy removal of dust and fine carbon carried from the generator to the carburetter.

3rd. Provide ample and satisfactory means for scrubbing and condensing of gas made.
and that after said changes are made said party of

the [29] first part shall at once proceed to make gas with said set, of the kind specified in said contract, with the same economy of fuel and oil mentioned in said contract.

2. It is agreed that if in said test said party of the first part shall bring said Apparatus to a gas making capacity of two million (2,000,000) cubic feet per twenty-four (24) hours, of the kind of gas mentioned in said contract, with the same economy of lamp-black fuel, containing not more than ten (10%) per cent moisture, and oil mentioned in said contract, then the party of the first part will accept as full payment for said Apparatus Twenty-six Thousand (\$26,000.00) Dollars, and in making this payment, Twenty-six Thousand (\$26,000.00) Dollars of the sum of Twenty-six Thousand Eight Hundred Twenty-three and 45/100 (\$26,823.45) Dollars already paid by the party of the second part, to party of the first part, shall be deemed as the payment hereunder, the balance of said sum, to wit, Eight Hundred Twenty-three and 45/100 (\$823.45) Dollars, to be returned by said first party to party of the second part.

If the party of the first part shall, in said test, bring said Apparatus to the capacity of two million seven hundred and fifty thousand (2,750,000) cubic feet per twenty-four (24) hours of the kind of gas specified in said contract, with the same economy of lamp-black fuel, containing not more than ten (10%) per cent moisture, and oil mentioned in said contract, then the party of the first part will accept as full payment for said Apparatus the original contract

price, to-wit, Thirty-five Thousand Six Hundred Ninety-four (\$35,694.00) Dollars, the payment of Twenty-six Thousand Eight Hundred Twenty-three and 45/100 (\$26,823.45) Dollars already made by party of the second part to be applied on the payment aforesaid.

And it is agreed that if said party of the second part shall during said test, bring said apparatus to a gas making capacity between two million (2,000,000) cubic feet per twenty-four (24) hours and two million seven hundred and fifty thousand (2,750,000) cubic feet per twenty-four (24) hours, of the kind of gas mentioned in said contract, with the same economy of lamp-black fuel, containing not more than ten (10%) per cent moisture, and oil mentioned in said contract, said party of the second part will pay for said Apparatus for each fifty thousand (50,000) cubic feet of gas per twenty-four (24) hours capacity over and above two million (2,000,000) cubic feet per twenty-four (24) hours, a sum proportionate between the said sum of Twenty-six Thousand (26,000.00) Dollars herein agreed to be paid for said two million (2,000,000) cubic feet capacity per twenty-four (24) hours, and the sum of Thirty-five Thousand Six Hundred and Ninety-four (\$35,694.00) Dollars, for said two million seven hundred and fifty thousand (2,750,000) cubic feet capacity per twenty-four (24) hours, and in making any of the aforesaid payments, the amount of Twenty-six thousand Eight Hundred Twenty-three and 45/100 (\$26,823.45) Dollars already paid by the party [30] of the second part shall be ap-

plied on the payment thereunder.

And it is agreed that the capacity of said Apparatus shall be determined solely as follows: The party of the first part shall notify the party of the second part when it is ready for the final test of said Apparatus, and the average capacity per twenty-four (24) hours of said set during said test, which shall not be less than twenty (20) consecutive days, shall constitute the capacity of said Apparatus for all the purposes hereunder.

3. And the party of the first part agrees that if said party of the first part cannot, during said test, bring said Apparatus to an established capacity as herein defined, of at least two million (2,000,000) cubic feet per twenty-four (24) hours, of the kind of gas specified in said contract, with the same economy of oil and lamp-black fuel containing not more than ten (10%) per cent of moisture mentioned in said contract, said party of the first part will remove at once without any cost to the party of the second part, said Apparatus from the premises of the party of the second part, and repay to said party of the second part all money heretofore paid or advanced by said party of the second part to said party of the first part under said contract, to wit: Twenty-six Thousand Eight Hundred Twenty-three and 45/100 (\$26,-823.45) Dollars.

In Witness Whereof, the parties have hereunto affixed their hands and the seals by their agents duly authorized.

THE WESTERN GAS CONSTRUCTION
COMPANY.

By B. S. PEDERSEN,
Agent.

LOS ANGELES GAS AND ELECTRIC
COMPANY.

By T. P. McCREA,
Purchasing Agent.

Approved as to form.

WM. A. CHENEY,
General Counsel.

That after the execution of said contract, and before the commencement of this action, the said action brought by the said Los Angeles Gas and Electric Company against the defendant herein, as heretofore set forth, was dismissed by the plaintiff therein, without prejudice. That the Los Angeles Gas and Electric Company at all times fully and completely performed each, every and all conditions upon its part under said contract of July 12, 1909, hereinbefore set forth. [31]

XII.

That on the first day of August, 1909, the Los Angeles Gas and Electric Company did, for a valuable consideration, duly *and transfer* and assign unto the plaintiff herein all its properties and business, and did at said time, for a valuable consideration, duly sell, transfer and assign to the plaintiff herein, its successor in interest, all its rights, inter-

ests and liabilities under and by virtue of its contracts of April 7, 1907, and July 12, 1909, with the defendant, hereinbefore set forth, and the plaintiff did on said 1st of August, 1909, for a valuable consideration, accept said assignment and assume all the obligations and liabilities under said contracts, and agreed to perform said contracts according to their terms and conditions.

XIII.

That the defendant was immediately notified of the aforesaid assignments of said contracts, and did on the 6th day of August, 1909, consent in writing to the aforesaid assignments.

XIV.

That after the execution of said contract of July 12, 1909, the defendant made certain alterations in its said apparatus, preparatory to the preliminary test as in said contract of July 12, 1909, provided, and on the 29th day of July, 1909, commenced said preliminary test, and defendant on the 14th day of August, 1909, shut down its said apparatus, having completed its preliminary test under said contract.

[32]

XV.

That thereafter the defendant made such changes in its said apparatus as it desired for the final test of said apparatus. That on the 28th day of February, 1910, the defendant notified the plaintiff that it would commence its final twenty (20) day test of said apparatus, on the morning of March 10th, 1910, at 6:00 o'clock A. M., as provided for in the aforesaid contract of July 12, 1909. That on the 10th

day of March, 1910, the defendant commenced said final test under said contract of July 12, 1909. That on the 30th day of March, 1910, at 6:00 o'clock A. M., the defendant completed its said final test, and notified plaintiff to that effect and shut down its said apparatus and ceased making gas therein.

XVI.

That the defendant, without any fault on the part of the plaintiff, failed during said final test under said contract of July 12, 1909, to bring its said apparatus to an established gas making capacity as defined in said contract, of at least two million (2,000,000) cubic feet per 24 hours of the kind of gas specified in said contract, with the same economy of lamp-black fuel containing not more than ten (10%) per cent moisture, provided for in said contract; that said apparatus did not during said final test obtain or reach an average capacity of two million (2,000,000) cubic feet of gas per 24 hours for twenty (20) consecutive days, but during said test said apparatus produced an average of much less than two million (2,000,000) cubic feet of gas per 24 hours; [33] that said apparatus did not during said test produce gas upon an average consumption of thirty-five (35) pounds, or less, of lamp-black containing not more than ten (10%) per cent moisture, per thousand cubic feet of gas made, but said apparatus did during said test consume on the average, thirty-nine and 58/100 (39.58) pounds of lamp-black containing less than ten (10%) per cent of moisture, per thousand cubic feet of gas made; that said apparatus did not at any time during said test pro-

duce gas of the quality or candle power equal to that specified in said contract of July 12, 1909; that said increased consumption of lamp-black by said apparatus during said test, over and above that provided in said contract, and the decreased gas-making capacity of said apparatus, from that provided for in said contract, greatly increased the cost of production of gas by said apparatus, per thousand cubic feet of gas made, over and above what the cost would have been had defendant's apparatus performed according to the guarantees of said contract. That said apparatus is of no value to plaintiff, by reason of its failure to perform according to said contract.

XVII.

That after said final test defendant abandoned its said apparatus and left it at plaintiff's plant, unused by plaintiff, in a defective, unfinished, incomplete and dilapidated condition, as hereinafter set forth, to wit, the charging floor is loosely laid, the plates thereof being illy fitted, making said [34] floor uneven and unsightly in appearance, and unfit for the proper use of lamp-black fuel in said apparatus; the top of the generator is in a dilapidated condition, being insufficiently reinforced, and leaky, allowing gas, tar and oil to escape; the charging floors are in a leaky condition where they are bolted to the top head of the generator; that 20" Crane Gate Valve installed by defendant is installed in a temporary and imperfect manner and is not sufficiently installed for a permanent and successful operation of the apparatus; a large part of the brick work in

the carburetter is broken down and unfit for proper operation; the cast-iron connecting pipe between the carburetter and superheater is in a leaky condition, and patched in a temporary manner by means of cement; the checker brick in the superheater is in a crumbled and broken condition; that said apparatus has never been painted with metallic paint; that by reason of the aforesaid dilapidated condition said apparatus is in no condition to be further operated without first making extensive repairs thereon; and the expending of a large amount of money.

XVIII.

That the plaintiff at all times fully and completely performed each, every and all conditions upon its part under said contracts, hereinbefore set forth.

That plaintiff has never accepted said apparatus, and said apparatus is now and has been at all times the sole property of the defendant, and is now and always has been subject to defendant's [35] right to remove and dispose of same; that said apparatus is now of no value, and never has been of any value to plaintiff, by reason of its unfit and dilapidated condition and failure to attain an established capacity, as defined in said contract, of at least two million (2,000,000) cubic feet per 24 hours, of the kind of gas specified in said contract, with the same economy of lamp-black fuel containing not more than ten (10%) per cent moisture, according to said contract of July 12, 1909, as hereinbefore set forth.

XIX.

That by reason of the failure of said apparatus to attain an established capacity, as defined in said

contract, of two million (2,000,000) cubic feet per 24 hours, of the kind of gas specified in said contract, with the same economy of lamp-black fuel containing not more than ten (10%) per cent moisture, according to the contract of July 12, 1909, the plaintiff did on the 5th day of April, 1910, and on the 8th day of April, 1910, demand of the defendant that the defendant immediately return to the plaintiff the sum of Twenty-six Thousand Eight Hundred Twenty-three and 45/100 Dollars (\$26,823.45), and at once remove its said apparatus from plaintiff's premises, at defendant's own cost and expense, as in said contract provided.

XX.

That the defendant has failed, neglected and refused at all times to return to the plaintiff said sum of Twenty-six Thousand Eight Hundred Twenty-three and 45/100 [36] Dollars (\$26,823.45), or any part thereof, or to remove its said apparatus from plaintiff's premises.

XXI.

That the lowest cost for which plaintiff can have said apparatus belonging to defendant removed from plaintiff's premises at the present time is Fifteen Hundred (\$1500.00) Dollars.

XXII.

That by reason of the failure and refusal of defendant to return to plaintiff said sum of Twenty-six Thousand Eight Hundred Twenty-three and 45/100 Dollars (\$26,823.45), and to remove said apparatus from plaintiff's premises as aforesaid, plaintiff has been damaged in the sum of Twenty-

eight Thousand Three Hundred Twenty-three and 45/100 Dollars (\$28,323.45).

WHEREFORE, plaintiff prays judgment against defendant in the sum of Twenty-eight Thousand Three Hundred Twenty-three and 45/100 Dollars (\$28,323.45), with interest thereon from date at the legal rate of interest, together with its costs herein incurred.

WM. A. CHENEY,
HERBERT J. GOUDGE,
LE ROY M. EDWARDS,

Attorneys for Plaintiff. [37]

State of California,

County of Los Angeles,—ss.

R. M. Adams, being first duly sworn, deposes and says: That he is an officer, to wit, Secretary, of the corporation plaintiff mentioned in the foregoing complaint; that he has read the said complaint and knows the contents thereof, and that the same is true of his own knowledge, except as to the matters therein stated on information or belief, and as to those matters, that he believes it to be true.

[Seal]

R. M. ADAMS.

Subscribed and sworn to before me this 3d day of May, 1910.

PAUL OVERTON,
Notary Public in and for the County of Los Angeles,
State of California.

[Endorsed]: Original. No. 1558. Dept..... In
the Circuit Court of the United States, Ninth Cir-
cuit, Southern District of California, Southern

Division. Los Angeles Gas and Electric Corporation, a Corporation, Plaintiff, vs. The Western Gas Construction Company, a Corporation. Complaint for Damages. Received copy of the within Complaint this day of, 1910., Attorney for Defendant. Filed May 3, 1910. Wm. M. Van Dyke, Clerk. Harry H. Jones, Deputy. Wm. A. Cheney, LeRoy M. Edwards, Herbert J. Goudge, 645 So. Hill St., Los Angeles, Cal., Attorneys for Plaintiff. [38]

[**Summons.]**

UNITED STATES OF AMERICA.

*Circuit Court of the United States, Ninth Circuit,
Southern District of California, Southern
Division.*

LOS ANGELES GAS AND ELECTRIC COR-
PORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COM-
PANY, a Corporation,

Defendant.

Action brought in the said Circuit Court and the
Complaint filed in the office of the Clerk of
said Circuit Court, in the City of Los Angeles,
County of Los Angeles.

The President of the United States of America,
Greeting: To the Western Gas Construction
Company, a Corporation.

You are hereby required to appear in an action

brought against you by the above-named plaintiff, in the Circuit Court of the United States, Ninth Circuit, in and for the Southern District of California, Southern Division, and to file your plea, answer or demurrer, to the complaint filed therein (a certified copy of which accompanies this summons), in the office of the Clerk of said Court, in the City of Los Angeles, County of Los Angeles, within twenty days after the service on you of this summons, or judgment by default will be taken against you.

The said action is brought to recover the sum of \$28,323.45, in which sum plaintiff alleges it has been damaged as follows: in the sum of \$26,823.45, by reason of the failure and refusal of defendant to return to plaintiff the sum of \$26,823.45 advanced by the Los Angeles Gas and Electric Company to defendant on account of the purchase price of certain apparatus under two certain contracts entered into between the Los Angeles Gas and Electric Company and the defendant, with the terms of which said contracts the defendant has failed to comply; plaintiff further alleges that the Los Angeles Gas and Electric Company, on August [39] 1st, 1909, did, for a valuable consideration, duly sell, transfer and assign to the plaintiff herein, all its rights, interests and liabilities under and by virtue of its said contracts with the defendant, and the plaintiff did, for a valuable consideration accept said assignment and assume all the obligations and liabilities under said contracts, and agree to perform said contracts according to their terms and condi-

tions; plaintiff further alleges that the defendant did consent in writing to the aforesaid assignments; plaintiff further alleges that the lowest cost for which plaintiff can have the apparatus belonging to defendant removed from plaintiff's premises, at the present time, is \$1,500.00; plaintiff further prays judgment for interest on said sum of \$28,323.45 at the legal rate of interest, together with its costs herein incurred, and if you fail to appear and plead, answer or demur, as herein required, your default will be entered and the plaintiff will take judgment for the sum demanded in the Complaint, viz., \$28,323.45, together with interest and costs of suit.

Witness the Honorable MELVILLE W. FULLER, Chief Justice of the United States, this 14th day of May, in the year of our Lord one thousand, nine hundred and ten and of our Independence the one hundred and thirty-fourth.

[Seal]

WM. M. VAN DYKE,
Clerk.

By Chas. N. Williams,
Deputy Clerk. [40]

United States Marshal's Office,
Southern District of California.

I hereby certify, that I received the within writ on the 23d day of May, 1910, and personally served the same on the 23d day of May, 1910, upon the Western Gas Construction Company, a corporation, by handing to and leaving with B. S. Pederson personally, the Agent of the said Western Gas Construction Company, a corporation, said defendant named therein, personally, at the City and County of San

Francisco in said District, an attested copy thereof, together with a certified copy of the Complaint, certified to by Clerk U. S. Circuit Court at Los Angeles, attached thereto.

San Francisco, Cal., May 23rd, 1910.

C. T. ELLIOTT,
U. S. Marshal.
By B. F. Towle,
Office Deputy.

[Endorsed]: Original. Marshal's Docket No. 5467. Marshal's Civil Docket No. 1506. No. 1558. U. S. Circuit Court, Ninth Circuit, Southern District of California, Southern Division. Los Angeles Gas and Electric Corporation, a Corporation, vs. The Western Gas Construction Company, a Corporation. Summons. Wm. A. Cheney, LeRoy M. Edwards, Herbert J. Goudge, Plaintiff's Attorney. Filed May 24, 1910. Wm. M. Van Dyke, Clerk. Chas. N. Williams, Deputy. [41]

In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant.

Demurrer.

The defendant demurs to the complaint herein and for cause of demurrer alleges:

That said complaint does not state facts sufficient to constitute a cause of action.

OSCAR A. TRIPPET,
Attorney for Defendant.

I HEREBY CERTIFY that, in my opinion, the foregoing demurrer is well founded in point of law.

OSCAR A. TRIPPET,
Attorney for Defendant.

[Endorsed]: (Original.) No. 1558. Dept
In the Circuit Court of the United States, 9th Circuit, So. Dist. of Cal., So. Div. Los Angeles Gas & Electric Corporation, Plaintiff, vs. Western Gas Construction Co., Defendant. Demurrer. Received Copy of the Within Demurrer this 13 day of June, 1910. L. W. Edwards, Wm. A. Cheney, Attorneys for Pltf. Filed Jun. 13, 1910. Wm. M. Van Dyke, Clerk. Chas. N. Williams, Deputy. Oscar A. Trippet, 315 Coulter Bldg., 213 So. Broadway, Los Angeles, Cal., Attorney for Defendant. [42]

In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division.

No. 1558.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant.

Amended Demurrer.

The defendant files this, its amended demurrer, and for cause of demurrer alleges:

I.

That said complaint does not state facts sufficient to constitute a cause of action.

II.

That said complaint is uncertain in this:

The following allegation in paragraph numbered XVI. of said complaint is uncertain, to wit:

“That the defendant, without any fault on the part of the plaintiff, failed during said final test under said contract of July 12, 1910, to bring its said apparatus to an established gas making capacity as defined in said contract of at least two million (2,000,000) cubic feet per 24 hours of the kind of gas specified in said contract, with the same economy of lamp-black fuel containing not more than ten (10%) per cent moisture, provided for in said contract”;

It cannot be determined from said allegation what the pleader meant by "established gas-making capacity as defined in said contract." There is nothing in the complaint to show what the plaintiff understands to be the capacity as defined in said contract.

That the following sentence in paragraph numbered XVI of said complaint is uncertain: [43]

"That said apparatus did not at any time during said test produce gas of the quality or candle-power equal to that specified in said contract of July 12, 1909."

It cannot be told from said allegation what the plaintiff means by "quality of gas"; whether the plaintiff means that said gas was good gas, good commercial gas, or whether the same was well fixed or non-condensable.

It cannot be determined from said allegation what the plaintiff means in said complaint by "candle-power equal to that specified in said contract"; whether the plaintiff means to allege that said candle-power was not twenty candle-power or twenty-two candle-power, or what other matter the plaintiff means by "equal," or what plaintiff regarded as specified in said contract.

The following allegation in said complaint in paragraph numbered XVIII of said complaint, to wit:

"That said apparatus is now of no value, and never has been of any value to plaintiff, by reason of its unfit and dilapidated condition and failure to attain an established capacity, as defined in said contract, of at least two million (2,000,000) cubic feet per 24 hours, of the kind of

gas specified in said contract, with the same economy of lamp-black fuel containing not more than ten (10%) per cent moisture, according to said contract of July 12, 1909, as hereinbefore set forth,"—

is uncertain, in that there is nothing to show what the plaintiff considered the capacity as defined in said contract, or the kind of gas specified in said contract.

The following allegation contained in paragraph numbered XIX of said complaint, is uncertain, to wit:

"That by reason of the failure of said apparatus to attain an established capacity, as defined in said contract, of two million (2,000,000) cubic feet per 24 hours, of the kind of gas specified in said contract, with the same economy of lamp-black fuel containing not more than ten (10%) per cent moisture, according to the contract of July 12, 1909,"—

in that there is nothing in said complaint to make certain what the plaintiff means by the capacity defined in said [44] contract or specified in said contract.

III.

Said complaint is ambiguous in the same respects that the same is alleged to be uncertain, as aforesaid.

IV.

That said complaint is unintelligible in the same respects that the same is alleged to be uncertain, as aforesaid.

OSCAR A. TRIPPET,
Attorney for Defendant.

[Endorsed]: Original. No. 1558. In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division. Los Angeles Gas & Electric Corporation, Plaintiff, vs. The Western Gas Construction Company, Defendant. Amended Demurrer. Rec'd. Copy of Within Amend. Demurrer this 5th day of July, 1910. Wm. A. Cheney, LeRoy M. Edwards, By J. W. L. Filed Jul. 5, 1910. Wm. M. Van Dyke, Clerk. Chas. N. Williams, Deputy. Oscar A. Trippet, Attorney at Law, 315 Coulter Building, 213 So. Broadway, Los Angeles, Cal. [45]

In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division.

No. 1558.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant.

Amendments to Complaint.

Comes now the plaintiff in the above-entitled action, and, by leave of the Court first had and obtained, files these its amendments to the complaint of the plaintiff already on file in said cause, as follows, to wit:

I.

Amend paragraph XVI of the Complaint so that the same shall read as follows:

"That the defendant, without any fault on the part of the plaintiff, failed during said final test under said contract of July 12, 1909, to bring the said apparatus to an established gas-making capacity as defined in said contract, of at least 2,000,000 cubic feet per twenty-four (24) hours, of the kind of gas specified in said contract, with the same economy of lamp-black fuel containing not more than *ten* (10%) moisture, provided for in said contract; that said apparatus did not during said final test obtain or reach an average capacity of two million (2,000,000) cubic feet of gas per twenty-four (24) hours for twenty (20) consecutive days, but during said test said apparatus produced an average of much less than two million (2,000,000) cubic feet of gas per twenty-four (24) hours, to wit, an average of not exceeding one million seven hundred and fifty [46] thousand (1,750,000) cubic feet of gas per twenty-four (24) hours; that said apparatus did not during said test produce gas upon an average consumption of thirty-five (35) pounds, or less, of lamp-black containing not more than ten (10%) per cent moisture, per thousand cubic feet of gas made, but said apparatus did during said test consume on the average thirty-nine and 58/100 (39.58) pounds of lamp-black containing less than ten (10%) per cent of moisture, per thousand cubic feet of gas made; that said apparatus did not during said test produce gas of a candle-power equal to that specified

in said contract of July 12, 1909, in that the average candle-power of the gas produced during said test did not exceed eighteen and 9/10 (18.9) candle-power; that said increased consumption of lamp-black by said apparatus during said test, over and above that provided in said contract, and the decreased gas-making capacity of said apparatus from that provided for in said contract, greatly increased the cost of production of gas by said apparatus, per thousand cubic feet of gas made, over and above what the cost would have been had defendant's apparatus performed according to the guarantees of said contract. That said apparatus is of no value to plaintiff, by reason of its failure to perform according to said contract.

WM. A. CHENEY,
H. J. GOUDGE,
LEROY M. EDWARDS,
Attorneys for Plaintiff.

[Endorsed]: Original. No. 1558. In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division. Los Angeles Gas and Electric Corporation, a Corporation, Plaintiff, vs. The Western Gas Construction Company, a Corporation, Defendant. Amendments to Complaint. Received Copy of the Within Amendments this 25 day of July, 1910. Oscar A. Trippet, Attorney for Defendant. Filed Jul. 25, 1910. Wm. M. Van Dyke, Clerk. Chas. N. Williams, [47] Deputy. Wm. A. Cheney, Herbert J. Goudge, Le-Roy M. Edwards, 645 So. Hill St., Los Angeles, Cal., Attorneys for Plaintiff. [48]

In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division.

No. 1558.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant.

Demurrer to Complaint as Amended.

The defendant files this, its amended demurrer, and for cause of demurrer alleges:

I.

That said complaint does not state facts sufficient to constitute a cause of action.

II.

That said complaint is uncertain in this:

The following allegation in paragraph numbered XVI of said complaint is uncertain, to wit:

“That the defendant without any fault on the part of the plaintiff, failed during said final test under said contract of July 12, 1909, to bring its said apparatus to an established gas making capacity as defined in said contract, of at least two million (2,000,000) cubic feet per 24 hours of the kind of gas specified in said contract, with the same economy of lamp-black fuel containing not more than ten (10%) per cent moisture, provided for in said contract.”

It cannot be determined from said allegation what is meant by "established gas-making capacity as defined in said contract." There is nothing in the complaint to show what is the capacity as defined in said contract. That the allegation is a conclusion of law.

The following allegation in said complaint in paragraph numbered XVIII of said complaint, to wit:

"That said apparatus is now of no value, and [49] never has been of any value to plaintiff, by reason of its unfit and dilapidated condition and failure to attain an established capacity, as defined in said contract, of at least two million (2,000,000) cubic feet per 24 hours, of the kind of gas *specified in said contract*, with the same economy of lamp black fuel containing not more than ten (10%) per cent moisture, according to said contract of July 12, 1909, as hereinbefore set forth,"—

is uncertain, in that there is nothing to show what is meant by the capacity as defined in said contract, or the kind of gas specified in said contract. Said allegation is a conclusion of law.

The following allegation contained in paragraph numbered XIX of said complaint, is uncertain, to wit:

"That by reason of the failure of said apparatus to attain an established capacity, as defined in said contract, of two million (2,000,000) cubic feet per 24 hours, of the kind of gas specified in said contract, with the same economy of lamp-black fuel containing not more than ten (10%) per cent moisture, according to the contract of July 12, 1909,"—

in that there is nothing in said complaint to make certain what is meant by the capacity defined in said contract or specified in said contract. Said allegation is a conclusion of law.

III.

Said complaint is ambiguous in the same respects that the same is alleged to be uncertain, as aforesaid.

IV.

That said complaint is unintelligible in the same respects that the same is alleged to be uncertain, as aforesaid.

OSCAR A. TRIPPET,

Attorney for Defendant.

I HEREBY CERTIFY that in my opinion the foregoing demurrer is well founded in point of law.

OSCAR A. TRIPPET,

Attorney for Defendant. [50]

[Endorsed]: (Original.) No. 1558. In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division. Los Angeles Gas & Electric Corporation, a Corporation, Plaintiff, vs. The Western Gas Construction Company, a Corporation, Defendant. Demurrer to Complaint as Amended. Received copy of within Demurrer this 4th day of Aug., 1910. Wm. A. Cheney, L. M. Edwards, Attys. for Pltff. Filed Aug. 4, 1910. Wm. M. Van Dyke, Clerk. Chas. N. Williams, Deputy. Oscar A. Trippet, Attorney at Law, 315 Coulter Building, 213 So. Broadway, Los Angeles, Cal. [51]

At a stated term, to wit, the July Term, A. D. 1910, of the Circuit Court of the United States of America, of the Ninth Judicial Circuit, in and for the Southern District of California, Southern Division, held at the courtroom in the City of Los Angeles, on Monday, the nineteenth day of September, in the year of our Lord one thousand nine hundred and ten. Present: The Honorable OLIN WELLBORN, District Judge.

[**Order Overruling Demurrer to Complaint as Amended.]**

No. 1558.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant.

This cause coming on this day to be heard on the demurrer of defendant to plaintiff's complaint as amended; LeRoy M. Edwards, Esq., and Herbert J. Goudge, Esq., appearing as counsel for plaintiff, and Oscar A. Trippet, Esq., appearing as counsel for defendant, and said demurrer having been argued in support thereof by Oscar A. Trippet, Esq., of counsel as aforesaid for defendant, and in opposition thereto by Herbert J. Goudge, Esq., of counsel as aforesaid for plaintiff, and in support thereof in reply by Oscar A. Trippet, Esq., of counsel as

aforesaid for defendant, and submitted to the Court for its consideration and decision, it is now by the Court ordered that said demurrer be, and the same hereby is overruled, and that defendant have ten (10) days in which to answer said complaint.

[Endorsed]: No. 1558. U. S. Circuit Court, Ninth Circuit, Southern District of California, Southern Division. Los Angeles Gas and Electric Corporation, a Corporation, Plaintiff, vs. The Western Gas Construction Company, a Corporation, Defendant. Copy of Order Overruling Demurrer. Filed Nov. 6, 1911. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. [52]

In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division.

No. 1558.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant.

**Answer to Complaint as Amended, and
Cross-complaint.**

Comes now the defendant in the above-entitled action, and for answer to plaintiff's complaint herein alleges:

I.

The defendant has no information or belief upon the subject sufficient to enable it to answer the allegations contained in paragraph numbered V of the complaint, and on that ground the defendant denies each and every allegation contained in said paragraph numbered V of the complaint, and denies each and every allegation therein contained, on the further ground that the same is irrelevant and redundant.

II.

The defendant denies that the Los Angeles Gas and Electric Company, solely by reason of each or every one of the representations or guaranties contained in said written proposal set forth in the complaint, or relying thereupon, the said company entered into said contract set forth in the complaint, with the defendant.

III.

The defendant has no information or belief upon the subject sufficient to enable it to answer the allegations contained in paragraph numbered VII of the complaint, and on that [53] ground denies each and every of said allegations, and the defendant further denies said allegations contained in said paragraph numbered VII on the ground that they are irrelevant and redundant.

Defendant admits, however, that the Los Angeles Gas and Electric Company paid to the defendant the sum specified in said contract dated July 12, 1909, and set forth in said complaint.

The defendant denies that the Los Angeles Gas and Electric Company at all times fully or completely performed each or every or all conditions upon its part under said contract set out in paragraph numbered VI of said Complaint.

IV.

The defendant has no information or belief upon the subject sufficient to enable it to answer the allegations contained in paragraph numbered VIII of the complaint, and on that ground the defendant denies each and every allegation contained in said paragraph numbered VIII of said complaint, and the defendant denies the said allegations contained in paragraph VIII of said complaint, on the further ground that the same are irrelevant and redundant. And the defendant alleges that all controversy concerning the alleged facts set forth in paragraph numbered VIII of the complaint were fully settled, and all the controversies existing concerning said alleged facts were fully determined, closed and ended by reason of the contract set out in the complaint and dated July 12, 1909.

V.

The defendant denies that said apparatus was, during or at the completion of, said alleged test pleaded in paragraph numbered VIII of the complaint, of no value to the Los Angeles Gas and Electric Company, by reason of the failure of said apparatus to perform according to the terms and guaranties of said [54] contract pleaded in paragraph numbered VI of the complaint or its uncompleted condition as set forth in said complaint, or that said Los Angeles Gas &

Electric Company refused at all times to accept said apparatus, or never did accept the same, or that said apparatus is now, or has been, at all times, the sole property of the defendant or is now or always has been, subject to defendant's right to remove or dispose of the same.

VI.

The defendant denies each and every of the allegations contained in paragraph numbered X of the complaint, on the ground that each and every of said allegations are irrelevant and redundant, and alleges that all the said allegations in said paragraph numbered X of the complaint were fully settled, adjusted and determined by the execution of the contract dated July 12, 1909, set out in the complaint.

And defendant denies that the Los Angeles Gas and Electric Company performed each, every or all conditions upon its part under said contract of July 12, 1909.

VII.

As to the allegations in paragraph numbered XV of the complaint, as follows: "That on the 28th day of February, 1910, the defendant notified the plaintiff that it would commence the final twenty-day test of said apparatus on the morning of March 19, 1910," the defendant alleges that on the 25th day of February, 1910, the plaintiff notified the defendant in writing that the defendant must commence said test on the first day of March, 1910; and the defendant was not ready to start said test on March 1, 1910, as required by the said plaintiff, and the defendant negotiated with the plaintiff and induced the said

plaintiff to change the date of said demand until March 10, 1910. That by reason of said demand of the said plaintiff to commence said test on March first, 1910, the plaintiff committed a breach of said contract of date July 12, 1909. [55]

VIII.

The defendant denies that the defendant, without any fault on the part of the plaintiff, or otherwise, failed during said final test under said contract of July 12 1909, to bring the said apparatus mentioned in said contract of July 12, 1909, to an established gas-making capacity as defined in said contract of at least two million cubic feet per twenty-four hours of the kind of gas specified in said contract, with the same economy of lamp-black fuel containing not more than ten per cent moisture, provided for in said contract. And denies that said apparatus did not during said alleged final test obtain or reach an average capacity of two million cubic feet of gas per twenty-four hours of twenty consecutive days, or that during said test said apparatus produced an average of much less than two million cubic feet of gas per twenty-four hours, to wit, an average not exceeding one million seven hundred and fifty thousand cubic feet of gas per twenty-four hours. And the defendant alleges, on the contrary, that said apparatus produced an average of more than two million cubic feet of gas per twenty-four hours for twenty consecutive days. The defendant denies that said apparatus did not during said test produce gas upon an average consumption of thirty-five pounds or less of lamp-black containing not more than ten per cent moisture

per thousand cubic feet of gas made, and defendant denies that said apparatus did, during said test, consume on an average thirty-nine and fifty-eight hundredths pounds of lamp-black containing less than ten per cent of moisture per thousand cubic feet of gas made, and denies that the same consumed more than thirty-five pounds of lamp-black containing not more than ten per cent moisture. The defendant denies that said apparatus did not, during said test, produce gas of a candle-power equal to that specified in said contract of July 12, 1909, and the defendant says [56] that prior to the beginning of the said test of said apparatus as set forth in said complaint, the plaintiff agreed with the defendant that it was not material that the defendant during said test should make gas of twenty or twenty-two candle-power, but if the defendant made gas with an average economy of oil so that 4.44 candles per thousand cubic feet of gas was produced for each gallon of oil used, that would satisfy the guaranty, and the plaintiff and defendant agreed that the said guaranty meant that the said apparatus should produce 4.44 candles per gallon of oil used per thousand cubic feet in manufacture, and use more than four and one-half gallons of California crude oil of seventeen degrees Baume per thousand cubic feet made, and in said test there was used only four and thirty-six hundredths gallons of California crude oil of seventeen degrees Baume per one thousand cubic feet made, and which produced an average candle-power of 19.05 without any correction for suspended water in the oil delivered to defendant during said test. That

said apparatus at all times produced 4.44 candle-power per thousand cubic feet of gas made for each gallon of oil used.

The defendant denies that any increased consumption of lamp-black by said apparatus during any test over and above that provided in said contract, or the decreased gas-making capacity of said apparatus over that provided for in said contract greatly or otherwise increased the cost of production of gas by said apparatus per thousand cubic feet of gas made over or above what the cost would have been had said apparatus performed according to the guarantees of said contract.

The defendant denies that said apparatus is of no value to plaintiff by reason of its failure to perform according to said contract or otherwise.

IX.

The defendant denies that after the said alleged final [57] test set forth in the complaint, the defendant abandoned the said apparatus in a defective, unfinished, incomplete or dilapidated condition, as set forth in said complaint, or otherwise.

The defendant denies that the charging floor is loosely laid, or that the plates thereof being illy fitted made said floors uneven or unsightly in appearance, or unfit for the proper use of lamp-black fuel in said apparatus, or that the top of the generator is in a dilapidated condition, being insufficiently reinforced or leaky, allowing gas, tar or oil to escape; or that the charging floors are in a leaky condition where they are bolted to the top head of the generator; or that the 20" Crane gate valve installed by defendant

is installed in a temporary or imperfect manner, or is not sufficiently installed for a permanent or successful operation of the apparatus; or that a large part of the brick work in the carbureter is broken down or unfit for proper operation; or the cast iron connecting pipe between the carbureter and superheater is in a leaky condition, or patched in a temporary manner by means of cement, or that the checker brick in the superheater is in a crumbled or broken condition.

As to the allegation "that said apparatus has never been painted with metallic paint," the defendant says that the controversy concerning the painting of said apparatus was adjusted by the contract of date July 12, 1909. Defendant admits that said apparatus was not painted with metallic paint, but at the plaintiff's request, the defendant painted the said apparatus with special paint used for similar purposes by the plaintiff.

Defendant denies that by reason of the alleged dilapidated condition set forth in said complaint, said apparatus is in no condition to be further operated without first making [58] extensive repairs thereon or the expending of a large amount of money.

X.

The defendant denies that the plaintiff performed each, every or all conditions upon its part under said contracts set forth in the complaint.

The defendant denies that plaintiff has never accepted said apparatus, or that said apparatus is now, or has been since July 12, 1909, the property of the defendant, or is now, or always has been subject to

defendant's right to remove or dispose of the same, or that said apparatus is now of no value, or that it never has been of any value to plaintiff by reason of its unfit or dilapidated condition, or failure to attain an established capacity as defined in said contract of at least two million cubic feet per twenty-four hours of the kind of gas specified in said contract, or otherwise, with the same economy of lamp-black fuel containing not more than ten per cent moisture according to said contract of July 12, 1909, as set forth in said complaint.

XI.

The defendant denies that by reason of the failure of said apparatus to attain an established capacity, as defined in said contract, of two million cubic feet per twenty-four hours of the kind of gas specified in said contract, with the same economy of lamp-black fuel containing not more than ten per cent moisture, according to the contract of July 12, 1909, the plaintiff did, on the 5th day of April, 1910, or on the 8th day of April, 1910, demand of the defendant that the defendant immediately return to the plaintiff the sum of \$26,823.45, and at once remove its said apparatus from plaintiff's premises at defendant's own cost and expense, as in said contract provided.

[59]

XII.

The defendant has no information or belief upon the subject sufficient to enable it to answer the allegations contained in paragraph numbered XXI of the complaint, and on that ground it denies each and

every allegation of said paragraph numbered XXI of said complaint.

XIII.

The defendant denies that by reason of the failure or refusal of the defendant to return to plaintiff said sum of \$26, 823.45, or to remove said apparatus from plaintiff's premises, as aforesaid, the plaintiff has been damaged in the sum of \$28323.45, or in any other sum, or at all. [60]

For a second and further defense, and by way of counterclaim to the plaintiff's complaint, the defendant alleges:

I.

That the plaintiff is now and ever since the 22d day of June, 1909, has been, a corporation organized and existing under and by virtue of the laws of the State of California, and it is now and has been at all times since said 22d day of June, 1909, a citizen of the State of California, and an inhabitant of the City of and County of Los Angeles, State of California, and its principal place of business is, and has been at all times since said 22d day of June, 1909, in said City of and County of Los Angeles, State of California, in the Southern Division of the Southern District of the Ninth Circuit of the United States, and plaintiff is now, and has been at all times since said 22d day of June, 1909, engaged in the business of generating, manufacturing, and supplying gas and electricity to said city and vicinity, and to the inhabitants thereof, as the successor in interest of the Los Angeles Gas and Electric Company.

II.

Los Angeles Gas and Electric Company is now, and

ever since the 29th day of March, 1904, has been, a corporation organized and existing under and by virtue of the laws of the State of California, and it is and was at all times herein mentioned a citizen of the State of California, and an inhabitant of the City of and the County of Los Angeles, State of California, and its principal place of business is and was at all said times in said City of and County of Los Angeles, State of California, in the Southern Division of the Southern District of the Ninth Circuit of the United States, and was actively engaged in the business of generating and supplying gas and electricity to [61] the City of Los Angeles and its inhabitants until the first day of August, 1909, at which time it ceased to operate any plants in the State of California.

III.

That the defendant is now, and was at all times herein mentioned, a corporation duly organized and existing under and by virtue of the laws of the State of Indiana, and that it is a citizen of the State of Indiana, and an inhabitant of, and its principal place of business is at, Fort Wayne, in Allen County, in the State of Indiana and that defendant was at all times mentioned herein and is now, doing business in the County of Los Angeles, State of California.

IV.

That at all times herein mentioned the defendant was, and still is, engaged in the business of manufacturing, selling and installing coal and water gas apparatus, including Extended Carburetter Superheater Water Gas Apparatus, to be used in gas plants

for the purpose of producing and generating commercial gas.

V.

That on the 8th day of April, 1907, the defendant entered into a contract with the Los Angeles Gas & Electric Company, a copy of which contract (with the exception of the specifications referred to therein), is hereto attached and hereof made a part and marked Exhibit "A." That the letter dated April 8, signed by Western Gas Construction Company hereto attached, is the letter referred to in said Exhibit "A," above the signature of both parties to said contract, and said letter is hereby made a part of said Exhibit "A."

That subsequently, on July 12, 1909, the defendant entered into a contract with the Los Angeles Gas & Electric Company, a copy of which is hereto attached, hereof made a part, and marked Exhibit "B." [62]

That the contract referred to in said Exhibit "B" between the said parties as bearing date of April 8, 1907, is the aforesaid contract hereto attached and marked Exhibit "A."

VI.

That on the 1st day of August, 1909, the Los Angeles Gas & Electric Company did, for a valuable consideration, duly transfer and assign unto the plaintiff herein all its properties and business, and did at said time, for a valuable consideration, duly sell, transfer and assign to the plaintiff herein, its successors in interest, all those rights, interests and liabilities under and by virtue of said contracts of April 8, 1907, and July 12, 1909, with the de-

fendant, which contracts are referred to as Exhibits "A" and "B," and the plaintiff did on said 1st day of August, 1909, for a valuable consideration accept said assignment, and assume all the obligations and liabilities under said contracts, and all liabilities of said Los Angeles Gas & Electric Company to the defendant, and agreed to perform said contracts according to their terms and conditions, and to pay defendant whatever said gas company owed to defendant. That the defendant was immediately notified of the aforesaid assignments of said contracts and said property, and the assumption of said liability by plaintiff, and defendant did, on the 6th day of August, 1909, consent in writing to the aforesaid assignments and assumption of liability aforesaid.

VII.

That in pursuance of said contract, Exhibit "A," the defendant, between the 8th day of April, 1907, and the first day of November, 1907, furnished and delivered to the Los Angeles Gas & Electric Company, mentioned in said contract, an Extended Carburetter Superheater Water Gas Apparatus with a charging floor for the same, and performed the work and labor [63] necessary to install the same, all of which was done at the special instance and request of said Los Angeles Gas & Electric Company.

VIII.

That thereafter, between the 12th day of July, 1909, and the 1st day of April, 1910, in pursuance of said contract Exhibit "B," the defendant made changes and additions in said Extended Carburetter

Superheater Water Gas Apparatus, and furnished and delivered said changes and additions to said plaintiff, and in making said changes between said dates, defendant expended a large sum of money, to wit, more than the sum of \$9,000. That said changes and additions were made at the special instance and request of said Los Angeles Gas & Electric Company, and at the special instance and request of the plaintiff herein.

That the reasonable value of said Extended Carburetter Superheater Water Gas Apparatus with charging floor for the same and labor necessarily performed to install the same, and the said changes and additions made thereto, were and are of the reasonable value of Thirty-five Thousand Six Hundred and Ninety-four (\$35,694) Dollars, which sum the said plaintiff assumed and agreed to pay, with the exception of what had been previously paid thereon by the said Los Angeles Gas & Electric Company.

IX.

That there has been paid upon said sum of \$35,694 the sum of \$26,823.45. That the balance \$8,870.55, with interest thereon, remains due and wholly unpaid. That the plaintiff refuses to pay said \$8,870.55 and said interest, to the defendant, although often requested, and the same, together with the interest thereon from April 1, 1910, is due and wholly unpaid. [64]

WHEREFORE, defendant prays judgment against the plaintiff for the sum of \$8,870.55, with interest thereon from April 1, 1910, at 7% per annum and costs of suit.

For a third and further defense, and by way of counterclaim to the plaintiff's complaint, the defendant alleges:

I.

The defendant refers to the second and further defense herein and makes paragraphs numbered I, II, III, IV, V, and VI, of said second and further defense a part of this defense by this reference.

II.

That prior to the beginning of the said test of said apparatus as hereinafter set forth, the plaintiff agreed with the defendant that it was not material that the defendant during said test should make gas of twenty or twenty-two candle-power, but if the defendant made gas with an average economy of oil so that four and forty-four hundredths (4.44) candles per thousand cubic feet of gas was produced for each gallon of oil used, that would satisfy the guarantee and the plaintiff and defendant agreed that the said guarantee meant that the said apparatus should produce four and forty-four hundredths (4.44) candles per gallon of oil used per thousand cubic feet in manufacture.

III.

That the defendant duly performed all the conditions on the defendant's part of said contract Exhibit "B" and said [65] apparatus or set duly performed the guaranties therein provided, in accordance with the agreements Exhibits "A" and "B" and stipulation set forth in paragraph numbered II hereof.

IV.

That after the changes were made as provided in paragraph numbered I in said contract Exhibit "B," and after entering into the agreement herein-before pleaded in paragraph numbered II of this answer, the defendant proceeded to make gas of the kind specified in said contract Exhibit "A," as modified or interpreted by said agreement pleaded in paragraph numbered II hereof, to wit, good commercial gas, well-fixed and non-condensable, and produced four and forty-four hundredths (4.44) candles per thousand cubic feet of gas manufactured per gallon of oil used with said set or apparatus.

That said apparatus was brought to an established capacity of at least 2,700,000 cubic feet of the said kind of gas, and that during the test, the gas was made with not more than thirty-two pounds of dried lamp-black, or thirty-five pounds of lamp-black containing not more than ten per cent moisture per thousand cubic feet of gas made, and using not more than four and a half ($4\frac{1}{2}$) gallons of California crude oil of 17° Baume per thousand cubic feet, made, and in said test there was only four and thirty-six hundredths gallons of California crude oil of 17° Baume per thousand cubic feet made, and which produced an average candle-power of 19.05 without any correction for suspended water in the oil delivered to defendant during said test. That said apparatus at all times produced 4.44 candle-power per thousand cubic feet of gas made for each gallon of oil used.

V.

That the plaintiff has not performed said contract Exhibit "B" required by said contract to be performed by said [66] plaintiff. That there is now due the defendant from the plaintiff the sum of \$8,210.95, with interest thereon from April 1, 1910, which sum with interest thereon is wholly unpaid.

WHEREFORE, the defendant demands judgment against the plaintiff for \$8,210.95, with interest from April 1, 1910.

For a fourth and further defense, and by way of counterclaim, to plaintiff's complaint, the defendant alleges:

I.

The defendant refers to the second and further defense herein and makes paragraphs numbered I, II, III, IV, V, and VI of said second and further defense a part of this defense by this reference.

II.

That prior to the beginning of the said test of said apparatus as hereinafter set forth, the plaintiff agreed with the defendant that it was not material that the defendant during said test should make gas of twenty or twenty-two candle-power, but if the defendant made gas with an average economy of oil so that four and forty-four hundredths (4.44) candles per thousand cubic feet of gas was produced for each gallon of oil used that would satisfy the guarantee and the plaintiff and defendant agreed that the said guarantee meant that the said apparatus should produce four and forty-four hundredths (4.44) candles per gallon of oil used per thousand

cubic feet in manufacture.

III.

That the defendant duly performed all the conditions [67] on defendant's part of said contract, Exhibit "B," and said apparatus or set will perform the guaranties provided in said Exhibit "B" in accordance with the agreements Exhibits "A" and "B" and the stipulation set forth in paragraph numbered II hereof.

IV.

That after the changes were made, as provided in paragraph numbered I in said contract, Exhibit "B," and after entering into the agreement herein-before pleaded in paragraph numbered II of this answer, the defendant proceeded to make gas of the kind specified in said contract Exhibit "A," as modified or interpreted by said agreement pleaded in paragraph numbered II hereof, to wit, good commercial gas, well-fixed and non-condensable, and produced four and forty-four hundredths (4.44) candles per thousand cubic feet of gas manufactured per gallon of oil used, with said set or apparatus.

That said apparatus was brought to an established capacity of at least 2,700,000 cubic feet of the said kind of gas, and that during the test, the gas was made with not more than thirty-two pounds of dried lamp-black, or thirty-five pounds of lamp-black containing not more than ten per cent moisture per thousand cubic feet of gas made, and using not more than four and one-half gallons of California crude oil of 17° Baume per thousand cubic feet made, and in said test there was used only four and thirty-six

hundredths gallons of California crude oil of 17° Baume per thousand cubic feet made, and which produced an average candle-power of 19.05 without any correction for suspended water in the oil delivered to defendant during said test. That said apparatus at all times produced 4.44 candle-power per thousand cubic feet of gas made for each gallon of oil used.

V.

The plaintiff has not performed said contract, Exhibit [68] "B," required by said contract to be performed by said plaintiff in this, to wit:

(a) That the plaintiff, on February 25, 1910, served a notice upon the defendant requiring the defendant to proceed with the test, as provided in said contract, Exhibit "B," on March 1, 1910. That the said defendant, in order to prevent conflict with the plaintiff, consented to commence the test on March 10, 1910, although the defendant was not at said time, to wit, March 10, 1910, ready to commence said test, and plaintiff knew defendant was not so ready.

(b) That the defendant commenced, on March 10, 1910, at 6:00 o'clock A. M., to make said test, as provided in said contract, Exhibit "B." That the plaintiff, in pursuance of said contracts Exhibits "A" and "B," undertook to furnish fuel for the purpose of making said test, and did furnish to the defendant the fuel used in making said test, but that said plaintiff did not furnish to the defendant lamp-black containing not more than ten per cent (10%) moisture to make said test. The plaintiff, however,

furnished to the defendant a substance which the said plaintiff then and there represented was lamp-black containing not more than ten per cent (10%) moisture; that the defendant believed the representation of plaintiff that said substance was lamp-black containing not more than ten (10%) per cent moisture, and relied upon the said representations being true, and said defendant operated said apparatus and set from the 10th day of March, 1910, until the first day of April, 1910, with the exception of three days, as herein specified, and in all of said operations the said defendant used the substance so furnished to the defendant by the plaintiff, which the plaintiff then and there represented to the defendant was lamp-black containing not more than 10% moisture, and the defendant, as aforesaid, believed said representations, and did [69] not know until after said test that said substance was not lamp-black, as represented.

That the said substance so furnished by the plaintiff as lamp-black containing not more than 10% moisture was not lamp-black, but was a substance containing lamp-black and many other substances, to wit, other substances amounting to more than 18% thereof.

That the defendant did not discover until after April 1, 1910, that the fuel so furnished by plaintiff as and for lamp-black was not lamp-black as so represented, but was, as aforesaid, a substance containing lamp-black and other substances.

That the other substances contained in said fuel furnished to the defendant, as aforesaid, as lamp-

black, would not make gas, and were not fitted to make gas, but were detrimental and injurious to the machinery and process of making gas, and caused consumption of fuel to drive off and consume the substances other than lamp-black contained in said fuel.

Defendant alleges on information and belief that the plaintiff knew at the time it was furnishing said alleged fuel which the plaintiff denominated lamp-black, that said substance was not lamp-black, but was only partly lamp-black, and partly composed of other substances.

That by reason of the conduct of said plaintiff in furnishing said fuel as and for lamp-black, the said apparatus and set was prevented from making many millions of cubic feet of gas in addition to what it did during said test.

That the said apparatus and set was damaged and injured by reason of the attempt to consume said substance alleged to be lamp-black, as aforesaid.

(c) That the fuel furnished by the plaintiff as and for lamp-black was not furnished in a scientific shape, nor in the [70] usual way, nor according to the understanding between the defendant and the Los Angeles Gas & Electric Company and the plaintiff, nor according to good practice for handling such stuff, but the said fuel was compressed into bricks with a great deal of moisture, to wit, more than 20% in the same, and was thereafter dried until the moisture was evaporated, so that the same after said drying, contained less than 10 per cent of moisture. And defendant alleges that said fuel should

have been dried until it contained less than 10% of moisture, and then pressed into bricks. That by reason of the said fuel being compressed with more than 20% of moisture therein and then dried, the said fuel lost its strength, was easily broken and fell to pieces and crumbled in handling and was not held in the shape of bricks, and after the same was put into the fire, the same crumbled into dust, packing the fuel bed, seriously interfering with and preventing proper combustion.

That the alleged lamp-black bricks so furnished by the plaintiff for the purpose of making said test and running said apparatus and set, were first compressed and made into bricks, while in a moist state, and were afterwards dried in ovens or kilns, thereby making the exterior of said brick drier than the interior, and making the adhesive properties of said alleged lamp-black of less tensile strength than if the said alleged lamp-black had been dried and then compressed, and when said bricks so furnished by the plaintiff were used, the moisture on the interior of said brick caused the said brick to expand on the interior more rapidly than on the exterior, and caused said brick to burst into fragments and into powder, and into its original state, thus smothering out the fire; and said bricks would not hold their shape nor stand the fire necessary to produce combustion to make gas. That said bricks were defectively moulded, in that the moulds were not filled with the material prior to their being compressed.

[71]

That the conduct of said plaintiff in furnishing

said brick in such shape is contrary to practice and contrary to good workmanship, and it compelled the defendant to shut down the apparatus three days to permit cleaning out the carburetter from accumulated fine carbon and other matters, which had closed up the gas passages, and thus necessitated the removal of brick work and replacement of the same before gas-making could be continued.

(d) The defendant alleges that in the manufacture of gas and in the operation of apparatus such as was erected by the defendant for the plaintiff as herein set forth, it is the usual custom and usual practice of all manufacturers of gas to shut down said apparatus one day out of every seven, for the purpose of cleaning such apparatus. That the defendant understood at the time said test was commenced, that the usual and customary practice in operating such machines would be followed. That the plaintiff refused to allow the defendant, during said test, to shut down said machine, or to stop the same one day in each week for the purposes of cleaning said apparatus. That the necessity for cleaning said apparatus was increased by reason of the defective fuel furnished by the plaintiff as aforesaid. That the defendant has always insisted, and now insists, that the defendant is entitled to have one day in each week when said apparatus should not be run, for the purposes of cleaning the same, and never consented that the test of twenty days between March 10 and April 1 was a test in accordance with the contract between the parties, as the same should be interpreted according to the usual

custom and practice in this regard.

That defendant proceeded with the test under protest, and continually protested to the plaintiff that it was not ready to commence said test, nor to continue said test, and was entitled to shut down and stop the operation of said machine one day in [72] each week for the purposes of cleaning and cooling.

And defendant alleges that if defendant had been permitted to operate said machine in accordance with the contract, and according to the usual course, custom and practice in the operation of such apparatus, that the defendant would during said operating period, have produced more than three million cubic feet, and would have established the average capacity of said machine to be more than 2,700,000 cubic feet during said period; but that said machine was unable to maintain the capacity of 2,700,000 cubic feet which it reached the first twenty-four hours, because of the defective fuel, the rapid accumulation of dust from same, carried over into the fixing chambers, and which was combined with the deposits from the oil and thus clogged the gas passages in fixing chambers. That by reason of the facts aforesaid, there never has been any test of said apparatus.

VI.

That by reason of the fact that the said plaintiff did not perform the said contract as hereinbefore specified, the said defendant has been damaged in the sum of Ten Thousand (\$10,000) Dollars.

VII.

That the said plaintiff refused to allow the said defendant to make any test of said apparatus or set,

and to demonstrate its capacity with lamp-black containing not more than 10% of moisture, as provided in said contract.

That there is due to the defendant by reason of the defendant's performance of said contract Exhibit "B," the sum of Eight Thousand Two Hundred Ten and 95/100 (\$8,210.95) Dollars with interest from April 1, 1910.

That by reason of the damages aforesaid, and the amount [73] due for the performance of said contract, there is due the defendant from plaintiff the sum of Eighteen Thousand Two Hundred Ten and 95/100 (\$18,210.95) Dollars, all of which is wholly unpaid.

WHEREFORE, defendant prays judgment against the plaintiff for Eighteen Thousand Two Hundred and Ten and 95/100 (\$18,210.95) Dollars, and for all proper relief. [74]

That the defendant for a cross-complaint against the plaintiff and the Los Angeles Gas & Electric Company, and for a first cause of action, complains of said plaintiff and said Los Angeles Gas & Electric Company, and alleges:

I.

That the plaintiff is now, and ever since the 22d day of June, 1909, has been, a corporation organized and existing under and by virtue of the laws of the State of California, and it is now and has been at all times since said 22d day of June, 1909, a citizen of the State of California, and an inhabitant of the City of and County of Los Angeles, State of California, and its principal place of business is, and has been at all

times since said 22d day of June, 1909, in said City of and County of Los Angeles, State of California, in the Southern Division of the Southern District of the Ninth Circuit of the United States, and plaintiff is now, and has been at all times since said 22d day of June, 1909, engaged in the business of generating, manufacturing, and supplying gas and electricity to said city and vicinity, and to the inhabitants thereof, as the successor in interest of the Los Angeles Gas and Electric Company.

II.

Los Angeles Gas and Electric Company is now, and ever since the 29th day of March, 1904, has been a corporation organized and existing under and by virtue of the laws of the State of California, and it is and was at all times hereinafter mentioned a citizen of the State of California, and an inhabitant of the City of and County of Los Angeles, State of California, and its principal place of business is and was at all said times in said City of and County of Los Angeles, State of California, in the Southern Division of the Southern District of the Ninth Circuit of the United States, and was actively engaged in the business [75] of generating and supplying gas and electricity to the city of Los Angeles and its inhabitants until the first day of August, 1909, at which time it ceased to operate any plants in the State of California.

III.

That the defendant is now, and was at all times herein mentioned, a corporation duly organized and existing under and by virtue of the laws of the State

of Indiana, and that it is a citizen of the State of Indiana, and an inhabitant of, and its principal place of business is at, Fort Wayne, in Allen County, in the State of Indiana, and that defendant was at all times mentioned herein, and is now, doing business in the County of Los Angeles, State of California.

IV.

That at all times herein mentioned the defendant was, and still is, engaged in the business of manufacturing, selling and installing coal and water gas apparatus, including Extended Carburetter Superheater Water Gas Apparatus, to be used in gas plants for the purpose of producing and generating commercial gas.

V.

That on the 8th day of April, 1907, the defendant entered into a contract with the Los Angeles Gas & Electric Company, a copy of which contract (with the exception of the specifications referred to therein) is hereto attached and hereof made a part and marked Exhibit "A." That the letter dated April 8, signed by Western Gas Construction Company, hereto attached, is the letter referred to in said Exhibit "A," above the signature of both parties to said contract, and said letter is hereby made a part of said exhibit "A."

That subsequently, on July 12, 1909, the defendant entered into a contract with the Los Angeles Gas & Electric [76] Company, a copy of which is hereto attached, hereof made a part and marked exhibit "B."

That the contract referred to in exhibit "B" be-

tween the said parties as bearing date of April 8, 1907, is the aforesaid contract hereto attached and marked exhibit "A."

VI.

That on the first day of August, 1909, the Los Angeles Gas & Electric Company did, for a valuable consideration, duly transfer and assign unto the plaintiff herein all its properties and business, and did at said time, for a valuable consideration, duly sell, transfer and assign to the plaintiff herein, its successors in interest, all those rights, interests and liabilities under and by virtue of said contracts of April 8, 1907, and July 12, 1909, with the defendant, which contracts are referred to as Exhibits "A" and "B," and the plaintiff did on said 1st day of August, 1909, for a valuable consideration, accept said assignment, and assume all the obligations and liabilities under said contracts, and all liabilities of said Los Angeles Gas & Electric Company to the defendant, and agreed to perform said contracts according to their terms and conditions, and to pay defendant whatever said Gas Company owed to defendant. That the defendant was immediately notified of the aforesaid assignment of said contracts and said property, and the assumption of said liability by plaintiff, and defendant did, on the 6th day of August, 1909, consent in writing to the aforesaid assignments and assumption of liability aforesaid.

VII.

That in pursuance of said contract, Exhibit "A," the defendant, between the 8th day of April, 1907, and the first day of November, 1907, furnished and

delivered to the Los Angeles Gas & Electric Company mentioned in said contract, [77] an Extended Carburetter Superheater Water Gas Apparatus with a charging floor for the same, and performed the work and labor necessary to install the same, all of which was done at the special instance and request of said Los Angeles Gas & Electric Company.

VIII.

That thereafter, between the 12th day of July, 1909, and the 1st day of April, 1910, in pursuance of said contract Exhibit "B," the defendant made changes and additions in said Extended Carburetter Superheater Water Gas Apparatus, and furnished and delivered said changes and additions to said plaintiff, and in making said changes between said dates, defendant expended a large sum of money, to wit, more than the sum of \$9,000. That said changes and additions were made at the special instance and request of said Los Angeles Gas & Electric Company, and at the special instance and request of the plaintiff herein.

That the reasonable value of said Extended Carburetter Superheater Water Gas Apparatus with charging floor for the same and labor necessarily performed to install the same, and the said changes and additions made thereto, were and are of the reasonable value of Thirty-five Thousand Six Hundred and Ninety-four (\$35,694) Dollars, which sum the said plaintiff and said Los Angeles Gas & Electric Company severally assumed and agreed to pay, with the exception of what had been previously paid thereon by the said Los Angeles Gas & Electric Company.

IX.

That there has been paid upon said sum of \$35,694 the sum of \$26,823.45. That the balance \$8,870.55, with interest thereon, remains due and wholly unpaid. That the plaintiff and said Los Angeles Gas & Electric Company refuse to pay said \$8,870.55 and said interest, to the defendant, although often requested, and [78] the same, together with the interest thereon, from April 1, 1910, is due and wholly unpaid.

WHEREFORE, defendant prays judgment against the plaintiff and Los Angeles Gas & Electric Company for the sum of \$8,870.55, with interest thereon from April 1, 1910, at seven (7%) per cent per annum, and costs of suit.

For a second and further cause of action and by way of cross-complaint against the plaintiff and the Los Angeles Gas & Electric Company, the defendant alleges:

I.

The defendant refers to the first cause of action and cross-complaint herein and makes paragraphs numbered I, II, III, IV, V and VI of said first cause of action and cross-complaint a part of this cause of action and cross-complaint by this reference.

II.

That prior to the beginning of the said test of said apparatus as hereinafter set forth, the plaintiff and said Los Angeles Gas & Electric Company agreed with the defendant that it was not material that the defendant during said test should make gas of twenty or twenty-two candle power, but if the defendant made gas with an average economy of oil so that four

and forty-four hundredths (4.44) candles per thousand cubic feet of gas was produced for each gallon of oil used, that would satisfy the guarantee and the plaintiff and Los Angeles Gas & Electric Company, and defendant agreed that the said guarantee meant that the said apparatus should produce four and forty-four hundredths (4.44) candles per gallon of oil used per thousand cubic feet in manufacture. [79]

III.

That the defendant duly performed all the conditions on the defendant's part of said contract Exhibit "B," and said apparatus or set duly performed the guarantees therein provided, in accordance with the agreements Exhibits "A" and "B" and stipulation set forth in paragraph numbered II hereof.

IV.

That after the changes were made as provided in paragraph numbered I in said contract Exhibit "B," and after entering into the agreement hereinbefore pleaded in paragraph numbered II of this cross-complaint, the defendant proceeded to make gas of the kind specified in said contract Exhibit "A" as modified or interpreted by said agreement pleaded in paragraph numbered II hereof, to wit, good commercial gas, well-fixed and non-condensable, and produced four and forty-four hundredths (4.44) candles per thousand cubic feet of gas manufactured per gallon of oil used with said set of apparatus.

That said apparatus was brought to an established capacity of at least 2,700,000 cubic feet of the said kind of gas, and that during the test, the gas was made with not more than thirty-two pounds of

dried lamp-black, or thirty-five pounds of lamp-black containing not more than ten per cent moisture per thousand cubic feet of gas made, and using not more than four and a half ($4\frac{1}{2}$) gallons of California crude oil of 17° Baume per thousand cubic feet made, and in said test there was used only four and thirty-six hundredths gallons of California crude oil of 17° Baume per thousand cubic feet made, and which produced an average candle-power of 19.05 without any correction for suspended water in the oil delivered to defendant during said test. That said apparatus at all times produced 4.44 candle-power per thousand cubic feet of gas made for each gallon of oil used.

V.

That the plaintiff has not, nor has said Los Angeles [80] Gas & Electric Company performed said contract Exhibit "B" required by said contract to be performed by said plaintiff and said Los Angeles Gas & Electric Company. That there is now due the defendant from the plaintiff and said Los Angeles Gas & Electric Company the sum of \$8,210.95, with interest thereon from April 1, 1910, which sum, with interest thereon, is wholly unpaid.

WHEREFORE, the defendant demands judgment against the plaintiff and said Los Angeles Gas & Electric Company for \$8,210.95, with interest from April 1, 1910.

For a third cause of action and by way of cross-complaint against plaintiff and the Los Angeles Gas & Electric Company, the defendant alleges:

I.

The defendant refers to the first cause of action and

cross-complaint herein and makes paragraphs numbered I, II, III, IV, V, and VI of said first cause of action and cross-complaint a part of this cause of action and cross-complaint by this reference.

II.

That prior to the beginning of the said test of said apparatus as hereinafter set forth, the plaintiff and said Los Angeles Gas & Electric Company agreed with the defendant that it was not material that the defendant during said test should make gas of twenty or twenty-two candle-power, but if the defendant made gas with an average economy of oil so that four and forty-four hundredths (4.44) candles per thousand cubic feet of gas was produced for each gallon of oil used, that would satisfy the guarantee, and the plaintiff and the Los Angeles Gas & Electric Company and the defendant agreed that the said guarantee meant that the said apparatus should produce four and forty-four hundredths [81] (4.44) candles per gallon of oil used per thousand cubic feet in manufacture.

III.

That the defendant duly performed all the conditions on defendant's part of said contract, Exhibit "B," and said apparatus or set will perform the guaranties provided in said Exhibit "B" in accordance with the agreements Exhibits "A" and "B" and the stipulation set forth in paragraph numbered II hereof.

IV.

That after the changes were made, as provided in

paragraph numbered I in said contract, Exhibit "B," and after entering into the agreement hereinbefore pleaded in paragraph numbered II of this cross-complaint, the defendant proceeded to make gas of the kind specified in said contract Exhibit "A" as modified or interpreted by said agreement pleaded in paragraph numbered II hereof, to wit, good commercial gas, well-fixed and non-condensable, and produced four and forty-four hundredths (4.44) candles per thousand cubic feet of gas manufactured per gallon of oil used, with said set or apparatus.

That said apparatus was brought to an established capacity of at least 2,700,000 cubic feet of the said kind of gas, and that during the test, the gas was made with not with than thirty-two pounds of dried lamp-black, or thirty-five pounds of lamp-black containing not more than ten per cent moisture per thousand cubic feet of gas made, and using not more than four and one-half gallons of California crude oil of 17° Baume per thousand cubic feet made, and in said test there was used only four and thirty-six hundredths gallons of California crude oil of 17° Baume per thousand cubic feet made, and which produced an average candle-power of 19.05 without any correction for suspended water in the oil delivered to defendant during said test. That said apparatus at all times produced 4.44 [82] candle-power per thousand cubic feet of gas made for each gallon of oil used.

V.

The plaintiff has not, nor has said Los Angeles Gas & Electric Company, performed said contract Exhibit

"B," required by said contract to be performed by said plaintiff, in this, to wit:

(a) That the plaintiff, on February 25, 1910, served a notice upon the defendant requiring the defendant to proceed with the test, as provided in said contract, Exhibit "B" on March 1, 1910. That the said defendant, in order to prevent conflict with the plaintiff, consented to commence the test on March 10, 1910, although the defendant was not at said time, to wit, March 10, 1910, ready to commence said test, and plaintiff knew defendant was not so ready.

(b) That the defendant commenced, on March 10, 1910, at 6:00 o'clock A. M. to make said test, as provided in said contract Exhibit "B." That the plaintiff, in pursuance of said contract Exhibits "A" and "B," undertook to furnish fuel for the purpose of making said test, and did furnish to the defendant the fuel used in making said test, but that said plaintiff did not furnish to the defendant lamp-black containing not more than ten per cent (10%) moisture to make said test. The plaintiff, however, furnished to the defendant a substance which the said plaintiff then and there represented was lamp-black containing not more than ten per cent (10%) moisture; that the defendant believed the representation of plaintiff that said substance was lamp-black containing not more than ten (10%) per cent moisture, and relied upon the said representations being true, and said defendant operated said apparatus and set from the 10th day of March, 1910, until the first day of April, 1910, with the exception of three days, as herein specified, [83] and in all of said operations the

said defendant used the substance so furnished to the defendant by the plaintiff, which the plaintiff then and there represented to the defendant was lamp-black containing not more than 10% moisture, and the defendant, as aforesaid, believed said representations, and did not know until after said test that said substance was not lamp-black, as represented.

That the said substance so furnished by the plaintiff as lamp-black containing not more than 10% moisture was not lamp-black, but was a substance containing lamp-black and many other substances, to wit, other substances amounting to more than 18% thereof.

That the defendant did not discover until after April 1, 1910, that the fuel so furnished by plaintiff as and for lamp-black was not lamp-black as so represented, but was, as aforesaid, a substance containing lamp-black and other substances.

That the other substances contained in said fuel furnished to the defendant, as aforesaid, as lamp-black, would not make gas, and were not fitted to make gas, but were detrimental and injurious to the machinery and process of making gas, and caused consumption of fuel to drive off and consume the substances other than lamp-black contained in said fuel.

Defendant alleges on information and belief that the plaintiff knew at the time it was furnishing said alleged fuel which the plaintiff denominated lamp-black, that said substance was not lamp-black, but was only partly lamp-black, and partly composed of other substances.

That by reason of the conduct of said plaintiff in furnishing said fuel as and for lamp-black, the said apparatus and set was prevented from making many thousands of cubic feet of gas in addition to what it did during said test. [84]

That the said apparatus and set was damaged and injured by reason of the attempt to consume said substance alleged to be lamp-black, as aforesaid

(c) That the fuel furnished by the plaintiff as and for lamp-black, was not furnished in a scientific shape, nor in the usual way, nor according to the understanding between the defendant and the Los Angeles Gas & Electric Company and the plaintiff, nor according to good practice for handling such stuff, but the said fuel was compressed into bricks with a great deal of moisture, to wit, more than 20% in the same, and was thereafter dried until the moisture was evaporated, so that the same after said drying, contained less than 10% of moisture. And defendant alleges that said fuel should have been dried until it contained less than 10% of moisture, and then pressed into bricks. That by reason of the said fuel being compressed with more than 20% of moisture therein and then dried, the said fuel lost its strength, was easily broken and fell to pieces and crumbled in handling and was not held in the shape of bricks, and after the same was put into the fire, the same crumbled into dust, packing the fuel bed, seriously interfering with and preventing proper combustion.

That the alleged lamp-black bricks so furnished by the plaintiff for the purpose of making said test

and running said apparatus and set were first compressed and made into bricks, while in a moist state, and were afterwards dried in ovens or kilns, thereby making the exterior of said brick drier than the interior, and making the adhesive properties of said alleged lamp-black of less tensile strength than if the said alleged lamp-black had been dried and then compressed; and when said bricks so furnished by the plaintiff were used, the moisture on the interior of said brick caused the said brick to expand on the interior more rapidly than on the exterior, and caused said brick [85] to burst into fragments and into powder, and into its original state, thus smothering out the fire; and said bricks would not hold their shape nor stand the fire necessary to produce combustion to make gas. That said bricks were defectively moulded, in that the moulds were not filled with the material prior to their being compressed.

That the conduct of said plaintiff in furnishing said brick in such shape is contrary to practice and contrary to good workmanship, and it compelled the defendant to shut down the apparatus three days to permit cleaning out the carbureter from accumulated fine carbon and other matters, which had closed up the gas passages, and thus necessitated the removal of brick work and replacement of the same before gas making could be continued.

(d) The defendant alleges that in the manufacture of gas and in the operation of apparatus such as was erected by the defendant for the plaintiff as herein set forth, it is the usual custom and usual practice of all manufacturers of gas to shut down said

apparatus one day out of every seven, for the purpose of cleaning such apparatus and cooling the same. That the defendant understood at the time said test was commenced, that the usual and customary practice in operating such machines would be followed. That the plaintiff refused to allow the defendant, during said test, to shut down said machine, or to stop the same one day in each week for the purposes of cleaning the said apparatus and cooling the same. That the necessity for cleaning said apparatus was increased by reason of the defective fuel furnished by the plaintiff as aforesaid. That the defendant has always insisted, and now insists, that the defendant is entitled to have one day in each week when said apparatus should not be run, for the purposes of cleaning the same, and never consented that the test of twenty days between March 10 and April 1 was a test in accordance with the contract between the parties [86] as the same should be interpreted according to the usual custom and practice in this regard.

That defendant proceeded with the test under protest, and continually protested to the plaintiff that it was not ready to commence said test, nor to continue said test, and was entitled to shut down and stop the operation of said machine one day in each week for the purposes of cleaning and cooling.

And defendant alleges that if defendant had been permitted to operate said machine in accordance with the contract and according to the usual course, custom and practice in the operation of such apparatus, that the defendant would during said operating

period, have produced more than three million cubic feet, and would have established the average capacity of said machine to be more than 2,700,000 cubic feet during said period; but that said machine was unable to maintain the capacity of 2,700,000 cubic feet which it reached the first twenty-four hours because of the defective fuel, the rapid accumulation of dust from same, carried over into the fixing chambers, and which was combined with the deposits from the oil and thus closed the gas passages in fixing chambers. That by reason of the facts aforesaid, there never has been any test of said apparatus. Defendant alleges on information and belief that plaintiff did all said things in this paragraph hereof alleged to have been done by plaintiff, at the instance and with the consent of the Los Angeles Gas and Electric Company.

VI.

That by reason of the fact that the said plaintiff and the Los Angeles Gas & Electric Company did not perform the said contract as hereinbefore specified, the said defendant has been damaged in the sum of Ten Thousand (\$10,000) Dollars.

VII.

That the said plaintiff and said Los Angeles Gas & [87] Electric Company refused to allow the said defendant to make any test of said apparatus or set, and to demonstrate its capacity with lamp-black containing not more than 10% of moisture, as provided in said contract.

That there is due to the defendant by reason of the defendant's performance of said contract Exhibit "B," the sum of Eight Thousand Two Hundred Ten

106 *Los Angeles Gas and Electric Corporation*
and 95/100 (\$8,210.95) Dollars with interest from
April 1, 1910.

That by reason of the damages aforesaid, and the amount due for the performance of said contract, there is due the defendant from plaintiff and said Los Angeles Gas & Electric Company the sum of Eighteen Thousand Two Hundred Ten and 95/100 (\$18,210.95) Dollars, all of which is wholly unpaid.

WHEREFORE, defendant prays judgment against plaintiff and the Los Angeles Gas & Electric Company for Eighteen Thousand Two Hundred Ten and 95/100 (\$18,210.95) Dollars, and for all proper relief.

OSCAR A. TRIPPET,
Attorney for Defendant. [88]

Exhibit "A" [to Answer and Cross-complaint].

THE WESTERN CONSTRUCTION COMPANY.

Main Office

and Works—Fort Wayne, Indiana.

This agreement made the Eighth day of April in the year one thousand nine hundred and seven by and between The Western Gas Construction Company of Fort Wayne, Indiana, a corporation duly organized under the laws of the State of Indiana, party of the first part (hereinafter designated as the "Contractor") and Los Angeles Gas & Electric Company, Los Angeles, Cal., party of the second part (hereinafter designated the "Owner");

WITNESSETH: That the Contractor, in consideration of the covenants and agreements contained herein on the part of the Owner, does covenant, promise and agree with the said Owner, in manner

following, that is to say:

1. Any part or portion of the specifications which are struck out are not included in this Agreement.

2. The Contractor shall and will well and sufficiently furnish, ERECT and finish, to the reasonable satisfaction of the Owner, subject to strikes, fires, freight blockades, all the GAS APPARATUS AND MACHINERY described and specified in its Specification No. 1389 comprising pages one to eleven inclusive, dated February 5th, 1907, the original being herewith delivered to and receipt thereof acknowledged by the Owner, and whereof an impression or duplicate copy is retained by the Contractor, generally comprising the following apparatus:

One 13'-0" x 12'-6" x 12'-0" Extended Carburetter Superheated Water Gas Apparatus with charging floor for same.

3. The apparatus shall be accepted upon completion in accordance with the specification.

4. The Owner will receive and properly store at the expense of the Contractor all materials which may arrive before the erectors of the Contractor, will hold Contractor harmless for damage to materials by fires or other causes, and afford all [89] necessary protection from depredation of any sort until acceptance of the apparatus, will use proper precaution to prevent the access of unauthorized persons to the premises where said work is being done.

5. The Owner shall furnish and provide the buildings, inclusive of the foundations, all yards and other excavations, fillings and refillings, pavings, floors, openings in walls and roofs, flashings for stacks, etc.,

all necessary steam, oil, water and drain connections at respectively convenient points for the several apparatus, all connections and parts of the gas plant not specified in the before mentioned specifications, in all respects suitable and sufficient, also openings or doors in the several rooms of suitable size to allow the apparatus of the Contractor to pass.

6. The Owner shall have the buildings in proper condition for the erection of the Apparatus on its arrival otherwise pay Contractor for expenses necessarily incurred through such delay. Nor during erection delay the progress of the work, otherwise pay for time men are idle, and travelling expenses, (if necessary to leave work and return after to continue or complete same,) including any other expenses necessarily incurred through such delay.

7. It is hereby mutually agreed between the parties heretc that the sum to be paid by the Owner to the Contractor for the [90] proper execution of the provisions of this agreement shall be Thirty Five Thousand Six Hundred and Ninety-four Dollars (\$35,694.00) lawful money of the United States, payable at par in Fort Wayne, Indiana, as follow:

Fifty per cent of the contract price in proportion as material is shipped or delivered to the premises of the Owner; twenty-five per cent of the contract price in such sums as may be called for from time to time during the progress of the work (said amount to include all payments for account of freights, advances to erectors and other sundry charges prior to the completion of the Apparatus) and the balance of the contract price thirty-five days after acceptance of apparatus as herein provided.

8. There are no understandings, promises or agreements on the part of the Owner or Contractor outside of this contract and specifications noted above, together with terms, conditions, and limitations therein contained, excepting Letter of Contractor to owner dated April 8th, to be and is hereby made a part of this contract.

IN WITNESS WHEREOF, The said parties for themselves, their heirs, executors, or assigns, have signed this AGREEMENT IN DUPLICATE, by their agents thereunto duly authorized, as of the day and year first above written.

THE WESTERN GAS CONSTRUCTION COMPANY,

By B. S. PEDERSON.

LOS ANGELES GAS & ELECTRIC COMPANY,

By T. P. McCREA,
Purchasing Agent.

Witnesses for the

Contractor, JO. K. TEETER;

Owner, C. A. LUCKENBACH.

Apr. 10, 1907. [91]

April 8, 1907.

Los Angeles Gas & Electric Company,
Los Angeles, Cal.

Gentlemen:—

Referring to our proposal of gas apparatus and machinery in accordance with our specifications No. 1389, dated February 5th, 1907, specifying generally one 13'-0" x 12'-6" x 12'-0" Extended Carburetter Superheated Water Gas Apparatus, we

beg to state that this apparatus is designed to have a capacity of from two million eight hundred thousand to three million two hundred thousand cubic feet per day of twenty-four hours with the use of good anthracite coal or gas house coke. With the use of lamp-black we guarantee that the apparatus will have a capacity of two million seven hundred and fifty thousand to three million cubic feet per day of twenty-four hours, using dry lamp-black.

We guarantee to make good commercial gas, well fixed and non-condensable, of from twenty to twenty-two candle power at the above rate per day, using not more than thirty-two pounds of dried lamp-black, or thirty-five pounds of lamp-black containing not more than 10% moisture, per thousand cubic feet of gas made.

We further guarantee that in the making of the above gas not more than four and one-half gallons of California Crude Oil of seventeen degrees Baume, or over will be used per thousand cubic feet made.

We further agree we will have the apparatus installed and in working order within five months from the date of this contract. In making the above agreement the Gas Company will be expected to aid our operators in fulfilling guarantee in so far as he may require modification of blast, dry steam, etc. This part of the machinery not being installed by us and consequently not under the direct supervision of our operator. [92]

The apparatus specified we agree to furnish and we guarantee to secure the above stated results for

the sum as stated in our letter of February 5th, \$32,-729.00, with an additional price for floor of \$2,965.00 extra. You are to unload and place the machinery in your yard at convenient point for our erector to get at same. If you desire us to do the unloading from your switch, we will do so for the additional price of \$250.00.

We are enclosing regular contract, covering the above work, in duplicate, one copy of which you will kindly sign and return to us, retaining the other for your own use.

Thanking you for your courtesy and assuring you that we will give you a first class apparatus in every respect, we are.

Yours truly,

THE WESTERN GAS CONSTRUCTION CO.

Per B. S. PEDERSON.

BSP/JKT. [93]

Exhibit "B" [to Answer and Cross-complaint].

THIS AGREEMENT, made and entered into this 12th day of July, 1909, by and between The Western Gas Construction Company, a corporation of Fort Wayne, Indiana, party of the first part, and the Los Angeles Gas and Electric Company, a corporation of Los Angeles, California, party of the second part,

WITNESSETH, Whereas the parties hereto did on the 8th day of April, 1907, enter into a contract by which the party of the first part herein, agreed to furnish and install at the plant of the party of the second part an Extended Carburetter Superheater Water Gas Apparatus, and

WHEREAS, the said party of the first part did furnish and install at the plant of the party of the second part, an Extended Carbureter Superheater Water Gas Apparatus, and the party of the second part did pay the party of the first part a portion of the contract purchase price therefor, to wit, Twenty-six Thousand Eight Hundred Twenty-three and 45/100 (\$26,823.45) Dollars, and

WHEREAS litigation has arisen between the said parties hereto concerning the question as to whether or not the said Extended Carburetter Superheater Water Gas Apparatus furnished and installed by the party of the first part, as aforesaid, was in accordance with said contract, and whether or not the said apparatus so furnished and installed, could produce the amount of gas guaranteed in said contract and

WHEREAS, the parties hereto now desire to finally dispose of and settle the controversy which has arisen between them concerning said Apparatus,

NOW THEREFORE BE IT AGREED:

1. That the party of the first part will at once proceed, and with as much expedition as possible make such changes in said apparatus as it may desire for a preliminary experiment with said apparatus for the determination of the character of changes or alterations it may desire to make preparatory to a final test of said Apparatus; that the said party of the first part will [94] immediately after said preliminary experiment, and with as much expedition as possible, make such changes in said apparatus as it may desire for the final test, which changes shall in part consist of—

1st. A new generator or generators, in place of the present generator now a part of said set.

2nd. Provide ample means for the collection and easy removal of dust and fine carbon carried from the generator to the carburetter.

3rd. Provide ample and satisfactory means for scrubbing and condensing of gas made.

and that after said changes are made said party of the first part shall at once proceed to make gas with said set, of the kind specified in said contract, with the same economy of fuel and oil mentioned in said contract.

2. It is agreed that if in said test said party of the first part shall bring said apparatus to a gas making capacity of two million (2,000,000) cubic feet per twenty-four (24) hours, of the kind of gas mentioned in said contract, with the same economy of lamp-black fuel, containing not more than ten (10%) per cent moisture, and oil mentioned in said contract, then the party of the first part will accept as full payment for said apparatus Twenty-six Thousand (\$26,000.00) Dollars, and in making this payment, Twenty-six Thousand (\$26,000.00) Dollars of the sum of Twenty-six Thousand Eight Hundred Twenty-three and 45/100 (\$26,823.45) Dollars already paid by the party of the second part to party of the first part, shall be deemed as the payment hereunder, the balance of said sum, to wit, Eight Hundred Twenty-three and 45/100 (\$823.45) Dollars to be returned by said first party to party of the second part. [95]

If the party of the first part shall, in said test, bring said apparatus to the capacity of two million

seven hundred and fifty thousand (2,750,000) cubic feet per twenty-four (24) hours of the kind of gas specified in said contract, with the same economy of lamp-black fuel, containing not more than ten (10%) per cent moisture, and oil mentioned in said contract, then the party of the first part will accept as full payment for said Apparatus the original contract price, to wit, Thirty-five thousand Six Hundred Ninety-Four (\$35,694.00) Dollars, the payment of Twenty-Six Thousand Eight Hundred Twenty-three and 45/100 (\$26,823.45) Dollars already made by party of the second part to be applied on the payment aforesaid.

And it is agreed, that if said party of the second part shall during said test, bring said apparatus to a gas making capacity between two million (2,000,000) cubic feet per twenty-four (24) hours and two million seven hundred and fifty thousand (2,750,000) cubic feet per twenty-four (24) hours, of the kind of gas mentioned in said contract, with the same economy of lamp-black fuel containing not more than ten (10%) per cent moisture and oil mentioned in said contract, said party of the second part will pay for said apparatus for each fifty thousand (50,000) cubic feet of gas per twenty-four (24) hours capacity over and above two million (2,000,000) cubic feet per twenty-four (24) hours, a sum proportionate between the said sum of Twenty-six Thousand (\$26,000) Dollars herein agreed to be paid for said two million (2,000,000) cubic feet capacity per twenty-four (24) hours, and the sum of Thirty-five Thousand Six Hundred and Ninety-four (\$35,694.00) Dollars, for said

two million seven hundred and fifty thousand (2,750,000) cubic feet capacity per twenty-four (24) hours, and in making any of the aforesaid payments, the amount of Twenty-six Thousand Eight Hundred Twenty-three and 45/100 (26,823.45) Dollars already paid by the party of the second part shall be applied on the payment thereunder. [96]

And it is agreed that the capacity of said Apparatus shall be determined solely as follows: The party of the first part shall notify the party of the second part when it is ready for the final test of said Apparatus, and the average capacity per twenty-four (24) hours of said set during said test, which shall not be less than twenty (20) consecutive days, shall constitute the capacity of said apparatus for all the purposes hereunder.

3. And the party of the first part agrees that if said party of the first part cannot, during said test, bring said apparatus to an established capacity as herein defined, of at least two million (2,000,000) cubic feet per twenty-four hours (24) of the kind of gas specified in said contract, with the same economy of oil and lamp-black fuel containing not more than ten (10%) per cent moisture, mentioned in said contract, said party of the first part will remove at once without any cost to the party of the second part, said apparatus from the premises of the party of the second part, and repay to said party of the second part all money heretofore paid or advanced by said party of the second part to said party of the first part under said contract, to wit, Twenty Six Thousand Eight Hun-

dred Twenty-three and 45/100 (\$26,823.45) Dollars.

IN WITNESS WHEREOF, the parties have hereunto affixed their hands and seals by their agents duly authorized.

THE WESTERN GAS CONSTRUCTION
COMPANY.

By B. S. PEDERSON,
Agent.

LOS ANGELES GAS AND ELECTRIC
COMPANY.

By T. P. McCREA,
Purchasing Agent. [97]

State of Indiana,
County of Allen,—ss.

Charles McCulloch, being by me first duly sworn, deposes and says: That the defendant Western Gas Construction Company is a corporation duly organized under the laws of the State of Indiana; that he is the Secretary of said corporation; that he has read the foregoing answer and cross-complaint and knows the contents thereof, and that the same is true of his own knowledge, except as to the matters which are therein stated upon his information or belief, and as to those matters, that he believes it to be true.

CHARLES McCULLOCH,
Secretary of the Western Gas Construction Co.

Subscribed and sworn to before me this 31st day of Aug., 1910.

[Seal] W. H. SHAMBAUGH,
Notary Public in and for the County of Allen, State
of Indiana.

Com. Ex. 3/23/1913.

[Endorsed]: (Original.) No. 1558. In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division. Los Angeles Gas and Electric Corporation, a Corporation, Plaintiff, vs. The Western Gas Construction Company, a Corporation, Defendant. Answer to Complaint as Amended and Cross-complaint. Filed Sep. 29, 1910. Wm. M. Van Dyke, Clerk. Chas. N. Williams, Deputy. Oscar A. Trippet, Attorney at Law, 315 Coulter Building, 213 So. Broadway, Los Angeles, Cal. [98]

In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division.

No. 1558.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant.

Answer to Cross-complaint.

Plaintiff answering the defendant's cross-complaint and first cause of action against the plaintiff, says:

I.

Plaintiff denies that the defendant, in pursuance of said contract Exhibit "A," between the 8th day of April, 1907, and the 1st day of November, 1907, or at any other time or at all, furnished or delivered

to the plaintiff or to the Los Angeles Gas and Electric Company an Extended Carburetter Superheater Water Gas Apparatus with charging floor for same, or any apparatus or material at all, at the special, or other, instance or request of the Los Angeles Gas and Electric Company or the plaintiff, or at all, or performed the, or any work or labor necessary to install the same at the special instance or request of the said Los Angeles Gas and Electric Company or the plaintiff, or furnished or delivered any machinery or apparatus or performed any work or labor whatsoever at the special instance or request, or for the benefit of the plaintiff or the Los Angeles Gas and Electric Company, or either of them. [99]

II.

Plaintiff admits that between the 12th day of July, 1909, and the 1st day of April, 1910, the defendant made certain changes and alterations in its Extended Carburetter Superheater Water Gas Apparatus installed at the plaintiff's plant; plaintiff denies, however, that said changes or additions, or any changes or additions to said, or any apparatus were furnished or delivered to the plaintiff; plaintiff denies that said changes or additions were made at the special, or any instance or request of the Los Angeles Gas and Electric Company or of the plaintiff, or either of them, but alleges that such changes and additions were made by the defendant for its own benefit and according to the terms of said contract Exhibit "B," and that said changes and additions were made for the benefit and use of the defendant in operating its said apparatus; plaintiff has not

sufficient knowledge, information or belief to enable it to answer the allegation that the defendant expended \$9,000.00, or any sum at all, in making said changes, and basing its denial upon said ground denies said allegation and each and every part thereof, both generally and specifically.

Plaintiff denies that the reasonable value, or the value at all of said Extended Carburetter Superheater Water Gas Apparatus with the charging floor for the same, and labor necessarily performed to install the same, and said changes and additions made thereto, or any of them, were or are of the reasonable value, or value at all of \$35,694.00, or of any sum at all, or that the plaintiff or the Los Angeles Gas and Electric Company, severally or at all, assumed or agreed to pay said sum of \$35,694.00, or any part thereof, or any money at all to the defendant. [100]

III.

Plaintiff denies that the sum of \$8,870.55 with interest thereon, or any sum at all, remains due or wholly or at all unpaid from plaintiff or the Los Angeles Gas and Electric Company, or either of them, to the defendant; plaintiff admits that it refused to pay said sum of \$8,870.55 to the defendant, but denies that it has ever been requested to pay same or any part thereof to this defendant; plaintiff denies that the said sum of \$8,870.55 with interest thereon, or any sum at all, is due or wholly or at all unpaid from the plaintiff to the defendant.

IV.

Plaintiff alleges that on the 8th day of April, 1907,

the said Los Angeles Gas and Electric Company, aforesaid mentioned, was desirous of purchasing a Water Gas Apparatus for the purpose of increasing the working capacity of its plant situated in the City of Los Angeles, County of Los Angeles, State of California, for the production and generation of gas with the use of lamp-black, a by-product of its plant, for fuel; that the defendant was fully informed of the needs and requirements of the Los Angeles Gas and Electric Company in this respect, and the character of the lamp-black fuel which it desired to use therein, and the character of its plant and the needs and the purpose for which it desired to purchase said Water Gas set, and the defendant thereupon proposed to the Los Angeles Gas and Electric Company to manufacture, install and sell to said Los Angeles Gas and Electric Company an Extended Carburetter Superheater Water Gas Apparatus of 2,700,000 to 3,000,000 cubic feet of gas per 24 hour day capacity, to be used by the said Los Angeles Gas and Electric Company for the production and generation of gas, which proposal was in writing addressed to the said Los Angeles Gas [101] and Electric Company, dated April 8, 1907, and forms a part of the Defendant's Exhibit "A."

V.

The Los Angeles Gas and Electric Company, solely by reason of each and every one of the representations and guarantees contained in said written proposal, and relying thereupon, did accept the defendant's said proposal and did thereupon enter into a written contract in the City of Los Angeles,

County of Los Angeles, State of California, with the defendant for the manufacturing, installation and sale by the defendant of an Extended Carburetter Superheater Water Gas Apparatus, to be manufactured and installed by the defendant at the plant of the Los Angeles Gas and Electric Company in the City of Los Angeles, County of Los Angeles, State of California, said contract being set forth in Defendant's Exhibit "A."

VI.

That thereafter the defendant manufactured at its plant in Fort Wayne, Indiana, delivered, and installed at the plant of the Los Angeles Gas and Electric Company, in the City of Los Angeles, California, an Extended Carbureter Superheater Water Gas Apparatus, purporting to be in accordance with the contract, hereinbefore set forth, and the Los Angeles Gas and Electric Company paid the defendant on account of the purchase price under said contract, the sum of Seventeen Thousand Eight Hundred Forty-seven Dollars (\$17,847.00), in accordance with the provisions contained in said contract for the payment of fifty (50%) per cent of purchase price upon arrival of materials, Fifteen Thousand Dollars (\$15,000.00) [102] of said sum being paid by the Los Angeles Gas and Electric Company to defendant on September 1, 1907, and Two Thousand Eight Hundred Forty-seven Dollars (\$2,847.00) on October 22, 1907; further, the said Los Angeles Gas and Electric Company paid on account of the defendant, for freight on said apparatus, the sum of Three Thousand Nine Hundred Thirty-

eight and 49/100 Dollars (\$3,938.49), in accordance with the provisions of said contract for the payment of freight; further, the said Los Angeles Gas and Electric Company paid on account of the defendant, for expressage on said apparatus, the sum of One Hundred One and 30/100 Dollars (\$101.30), in accordance with the provisions contained in said contract for the payment of expressage; further, the Los Angeles Gas and Electric Company, on the 20th of February, 1908, paid on account of the defendant, for hauling of a part of said apparatus the sum of Two Dollars (\$2.00) in accordance with the provisions of said contract for the payment of said hauling; further, the Los Angeles Gas and Electric Company advanced to defendant's authorized agent and "erector," upon demand made by said agent and "erector" for money necessary to prosecute the setting up and installation of said apparatus, the sum of Four Thousand Nine Hundred Thirty-four and 66/100 Dollars (4,934.66), in accordance with the provisions contained in said contract for payment to said "erector" of such sums as he might need. That the defendant has at all times retained all of said money paid and advanced to the defendant by the Los Angeles Gas and Electric Company as aforesaid.

Further, the Los Angeles Gas and Electric Company, at all times fully and completely performed each and [103] every and all conditions upon its part under said contract, hereinbefore set forth.

VII.

That the defendant did, after the installation of

its said apparatus, proceed to test and operate same, and the defendant did make two complete tests of its said apparatus. That said apparatus never operated fully or completely or successfully, or in any respect approached or fulfilled all or any of the guaranties in the contract hereinbefore set forth, during the said tests, but without any fault on the part of the said Los Angeles Gas and Electric Company, said apparatus did at all times during the said tests carried on by defendant, fail to make the quantities and quality of gas, with the economy of fuel or oil set forth in said contract; that said apparatus did at no time during any period of twenty-four (24) hours in either of said tests produce as much as the minimum quantity of gas provided for and guaranteed in said contract; that said apparatus did not at any time during said tests produce gas upon a consumption of thirty-five (35) pounds, or less, of lamp-black containing not more than ten (10) per cent of moisture per thousand cubic feet of gas made, as provided and guaranteed in said contract; that said apparatus did not at any time during said tests produce gas upon a consumption of four and one-half ($4\frac{1}{4}$) gallons or less, of California crude oil of 17 degrees Baume, or over, per thousand cubic feet of gas made, as provided in said contract; that said apparatus at no time during said tests was able to perform, or did perform, according to the said contract, but at all times during said tests [104] said apparatus produced much less than two million seven hundred and fifty thousand (2,750,000) cubic feet of gas per day of

twenty-four (24) hours; that said apparatus did at all times during said tests consume far in excess of thirty-five (35) pounds of lamp-black containing less than ten (10%) per cent of moisture, per thousand cubic feet of gas made; that said apparatus did consume far in excess of four and one-half (4 $\frac{1}{2}$) gallons of California crude oil of not less than 17 degrees Baume per thousand cubic feet of gas made; that said increased consumption of oil and fuel during said tests greatly increased the cost of production of gas by said apparatus per thousand cubic feet of gas made, over and above what the cost would have been under the guaranteed consumption, set forth in the contract.

That the said gas made by said apparatus during said tests was not "good commercial gas well-fixed and noncondensable," but that said gas was at all said times of excessive heat, condensable and not fixed, and contained a great percentage of aqueous vapor and tar substances.

That the generator in said apparatus was during said tests defective in construction, arrangement and plan, in that it was unable to sustain the fire bed to a sufficient height to enable the apparatus to reach the contract gas making capacity, or even approach same, and in that it was unable to bring the entire fuel bed to the proper incandescence for gas-making purposes, and in that it was unable to generate sufficient water gas to enable the defendant's apparatus to fulfill the contract guarantees as to gas-making capacity.

That the defendant also failed to complete said

apparatus in accordance with specifications number 1389, [105] provided in said contract, in that defendant failed to equip said apparatus with the "hydraulic operated combination valve system" connecting the generator and carburetter, as specified on page 3 of Specifications Number 1389, but defendant, instead thereof, equipped said apparatus with a 36-inch disc valve of water-cooled body, and said valve so furnished was to the knowledge of defendant, cracked and useless, and seriously interfered with the operation of said apparatus; in that the defendant failed to complete the "charging floor," and left portions of it unlaid, and other portions loosely fastened; in that the defendant failed to paint the shell and pipe with metallic paint, as provided for on page 11 of the Specifications Number 1389; in that the defendant failed to provide said apparatus with a "divided blast grate," insuring uniform distribution of air impinging directly against the entire bottom surface of the fuel bed; in that defendant failed to equip said apparatus with "special distributors," "insuring uniformity of steam supply"; and in that defendant failed to equip said apparatus with "adjustable injectors" for vaporization of oil in the carburetter.

VIII.

That said apparatus was during and at the completion of said tests of no value to the Los Angeles Gas and Electric Company, by reason of the failure of said apparatus to perform according to the terms and guarantees of said contract, and its uncompleted condition, as heretofore set forth, and the said Los

Angeles Gas and Electric Company refused at all times to accept said [106] apparatus, and never did accept same, and said apparatus is now, and has been at all times, the sole property of the defendant, and is now and always has been subject to defendant's right to remove and dispose of same.

IX.

That the Los Angeles Gas and Electric Company after the aforesaid tests, demanded of the defendant that it return to the said Los Angeles Gas and Electric Company the money so far advanced to it by said Los Angeles Gas and Electric Company under said contract, as hereinbefore set forth, and upon the refusal of the said defendant to return all or any part of the said money, the Los Angeles Gas and Electric Company commenced an action at law on the 24th day of July, 1908, against the defendant herein in the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division, to recover Thirty-five Thousand Fifty and 80/100 Dollars (\$35,050.80) damages from said defendant for the failure to perform the contract hereinbefore set forth. That the defendant was served with a copy of the complaint and summons in said action at law and appeared in said court in response thereto.

X.

Thereafter, on or about the 1st day of July, 1909, the defendant inquired of the said Los Angeles Gas and Electric Company if it were possible for said parties to adjust the controversy existing between them without litigation, and thereafter on the 12th

day of July, 1909, [107] with the express intention and purpose of finally settling and disposing of the controversy and litigation which had arisen between them as aforesaid the said Los Angeles Gas and Electric Company and the defendant entered into the contract set forth in defendant's cross-complaint marked Exhibit "B."

XI.

That after the execution of the said contract and before the commencement of this action, the said action brought by the said Los Angeles Gas and Electric Company against this defendant herein, as heretofore set forth, was dismissed by the plaintiff herein without prejudice; that the Los Angeles Gas and Electric Company at all times fully and completely performed each, every and all conditions upon its part of said contract of July 12th, 1909, hereinbefore set forth.

XII.

That thereafter the defendant made such changes in its said apparatus as it desired for the final test of said apparatus. That on the 28th day of February 1910, the defendant notified the plaintiff that it would commence its final twenty (20) day test of said apparatus, on the morning of March 10th, 1910, at 6:00 o'clock A. M., as provided for in the aforesaid contract of July 12, 1909. That on the 10th day of March, 1910, the defendant commenced said final test under said contract of July 12, 1909. That on the 30th day of March, 1910, at 6:00 o'clock A. M., the defendant completed its final test and notified [108] plaintiff to that effect, and shut down its said

apparatus and ceased making gas therein.

XIII.

That the defendant, without any fault on the part of the plaintiff, failed during said final test under said contract of July 12, 1909, to bring the said apparatus to an established gas-making capacity as defined in said contract, of at least 2,000,000 cubic feet per twenty-four (24) hours of the kind of gas specified in said contract, with the same economy of lamp-black fuel containing not more than ten (10%) per cent moisture, provided for in said contract; that said apparatus did not during said final test obtain or reach an average capacity of two million (2,000,000) cubic feet of gas per twenty-four (24) hours for twenty (20) consecutive days, but during said test said apparatus produced an average of much less than two million (2,000,000) cubic feet of gas per twenty-four (24) hours, to wit, an average not exceeding one million seven hundred and fifty thousand (1,750,000) cubic feet of gas per twenty-four (24) hours; that said apparatus did not during said test produce gas upon an average consumption of thirty-five (35) pounds, or less, of lamp-black containing not more than ten (10%) per cent moisture, per thousand cubic feet of gas made, but said apparatus did during said test consume on the average of thirty-nine and 58/100 (39.58) pounds of lamp-black containing less than ten (10%) per cent of moisture, per thousand cubic feet of gas made; that said apparatus did not during said test produce gas of a candle-power equal to that specified in said contract of July 12, 1909, in that the average candle-

power of the gas produced during said test did not exceed eighteen and 9/10 (18.9) [109] candle-power; that said increased consumption of lamp-black by said apparatus during said test, over and above that provided in said contract and the decreased gas-making capacity of said apparatus, from that provided for in said contract, greatly increased the cost of production of gas by said apparatus, per thousand cubic feet of gas made, over and above what the cost would have been had defendant's apparatus performed according to the guarantees of said contract. That said apparatus is of no value to plaintiff, by reason of its failure to perform according to said contract.

XIV.

That after said final test defendant abandoned its said apparatus and left it at plaintiff's plant, unused by plaintiff, in a defective, unfinished, incomplete and dilapidated condition as hereinafter set forth, to wit, the charging floor is loosely laid, the plates thereof being illy fitted, making said floor uneven and unsightly in appearance, and unfit for the proper use of lamp-black fuel in said apparatus; the top of the generator is in a dilapidated condition, being insufficiently reinforced, and leaky, allowing gas, tar and oil to escape; the charging floors are in a leaky condition where they are bolted to the top head of the generator; that 20" Crane gate valve installed by defendant is installed in a temporary and imperfect manner and is not sufficiently installed for a [110] permanent and successful operation of the apparatus; a large part of the brick work in the

carburetter is broken down and unfit for proper operation; the cast-iron connecting pipe between the carburetter and superheater is in a leaky condition, and patched in a temporary manner by means of cement; the checker-brick in the superheater is in a crumbled and broken condition; that said apparatus has never been painted with metallic paint; that by reason of the aforesaid dilapidated condition said apparatus is in no condition to be further operated without first making extensive repairs thereon, and the expending of a large amount of money.

XV.

That the plaintiff at all times fully and completely performed each, every and all conditions upon its part under said contract, hereinbefore set forth.

That plaintiff has never accepted said apparatus, and said apparatus is now and has been at all times the sole property of the defendant, and is now and always has been subject to defendant's right to remove and dispose of same; that said apparatus is now of no value, and never has been of any value to plaintiff, by reason of its unfit and dilapidated condition and failure to attain an established capacity, as defined in said contract, of at least two million (2,000,000) cubic feet per 24 hours, of the kind of gas specified in said contract, with the same economy of lamp-black fuel containing not more than ten (10%) per cent moisture, according to said contract of July 12, 1909, as hereinbefore set forth. [111]

XVI.

That by reason of the failure of said apparatus to attain an established capacity, as defined in said

contract, of two million (2,000,000) cubic feet per 24 hours, of the kind of gas specified in said contract, with the same economy of lamp-black fuel containing not more than ten (10%) per cent moisture, according to the contract of July 12, 1909, the plaintiff did on the 5th day of April, 1910, and on the 8th day of April, 1910, demand of the defendant that the defendant immediately return to the plaintiff the sum of Twenty-six Thousand Eight Hundred Twenty-three and 45/100 Dollars (\$26,823.45), and at once remove its said apparatus from plaintiff's premises, at defendant's own cost and expense, as in said contract provided.

XVII.

That the defendant failed, neglected, and refused at all times to return to the plaintiff said sum of Twenty-six Thousand Eight Hundred Twenty-three and 45/100 Dollars (\$26,823.45), or any part thereof, or to remove its said apparatus from plaintiff's premises.

WHEREFORE, plaintiff prays that the defendant take nothing by its cross-complaint. [112]

Plaintiff for answer to defendant's second cause of action and cross-complaint, says:

I.

The plaintiff refers to its answer to defendant's first cause of action and cross-complaint herein and makes paragraphs numbered IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, XV, XVI, and XVII of said answer to defendant's first cause of action and cross-complaint a part of this answer to defendant's second cause of action and cross-complaint by

this reference, as fully and completely as if same were herein set out at length.

II.

Plaintiff denies that prior to the beginning of the final test of said apparatus under the contract of July 12, 1909, or at any other time or at all, that the plaintiff or the Los Angeles Gas and Electric Company, or either of them, agreed with the defendant that it was not material that the defendant during said test should make gas of twenty (20) or twenty-two (22) candle-power; plaintiff denies that at said time, or at any other time or at all, the Los Angeles Gas and Electric Company or the plaintiff agreed with the defendant that if the defendant should make gas with an average economy of oil so that 4.44 candle-power per thousand (1,000) cubic feet of gas was produced for each gallon of oil used that it would satisfy the guarantees; plaintiff denies that the Los Angeles Gas and Electric Company or the plaintiff agreed that any candle-power under twenty (20) or twenty-two (22) candle-power would satisfy the guarantees under said contracts Exhibits "A" and "B." Plaintiff denies that the plaintiff [113] or the Los Angeles Gas and Electric Company agreed with the defendant that said guarantees meant that said apparatus should produce 4.44 candles per gallon of oil per thousand (1,000) cubic feet manufactured. Plaintiff alleges that the defendant at no time even advanced the suggestion that the guarantees set forth in said contracts meant 4.44 candles per thousand (1,000) cubic feet of gas produced for each gallon of oil used, or that said guarantees meant

anything else than twenty (20) or twenty-two (22) candle-power, except near the time of completion of said final test when the defendant's agent advanced the suggestion that said guarantees meant 4.44¹ candles per thousand (1,000) cubic feet of gas produced for each gallon of oil used, and the plaintiff at said time stated to the defendant and its agents that said guarantees did not mean 4.44 candles per thousand (1,000) cubic feet of gas produced for each gallon of oil used, and plaintiff did at said time claim and assert that the said guarantees meant twenty (20) or twenty-two (22) candle-power and nothing else.

III.

Plaintiff denies that the defendant duly, or at all performed any, or all of the conditions on the defendant's part under said contract Exhibit "B" but alleges that defendant failed to perform same as hereinbefore set forth; and plaintiff denies that said apparatus or set, duly, or at all performed the said guarantees provided in said contract, or in accordance with the agreements Exhibits "A" and "B," but failed to perform same as is hereinbefore set forth. Plaintiff denies that the alleged stipulation set forth in paragraph II of defendant's [114] second cause of action and cross-complaint was ever entered into.

IV.

Plaintiff denies that the defendant proceeded to make gas of the kind specified in paragraph IV of the defendant's second cause of action and cross-complaint, or gas of any kind or quality whatsoever, after entering into an agreement such as is set forth

in paragraph II of defendant's second cause of action and cross-complaint.

Plaintiff alleges that the defendant in the aforesaid final test of said apparatus attempted to make gas of the kind specified in said contract Exhibits "A" and "B," and alleges that if the defendant proceeded to make gas of 4.44 candle per thousand (1,000) cubic feet of gas manufactured per gallon of oil used with said apparatus it was without the knowledge or consent of the plaintiff, or of the Los Angeles Gas and Electric Company.

Plaintiff denies that the said contract Exhibit "A" was ever modified, whether as set forth in paragraph II of the defendant's second cause of action and cross-complaint, or otherwise or at all.

V.

Plaintiff denies that said apparatus was brought to an established capacity as defined in said contract Exhibit "A" of at least 2,700,000 cubic feet of gas per twenty-four (24) hours for twenty (20) consecutive days; plaintiff alleges that the established capacity of said apparatus during said test for twenty (20) consecutive days did not exceed 1,750,000 cubic feet of gas per twenty-four (24) hours; plaintiff denies [115] that during said test said apparatus made gas with a consumption of not more than thirty-two (32) pounds of dried lamp-black, or thirty-five (35) pounds of lamp-black containing not more than ten (10%) per cent moisture per thousand (1,000) cubic feet of gas made, but alleges that the said apparatus did during said test consume on an average thirty-nine and 58/100 (39.58) pounds of

lamp-black containing not more than ten (10%) per cent moisture per thousand (1,000) cubic feet of gas made; denies that during said test that said apparatus used only four and 36/100 (4.36) gallons of California crude oil of 17° Baume per thousand (1,000) cubic feet of gas made, or produced an average candle-power of 19.05, with or without any correction for suspended water, if any, in the oil delivered to the defendant during said test. Denies that said apparatus, at all times or at any time, produced 4.44 candle-power gas for each gallon of oil used, but alleges that the average candle power of the gas produced during said test did not exceed 18.9 candle-power.

VI.

Plaintiff alleges that the Los Angeles Gas and Electric Company and the plaintiff, and each of them, have at all times fully and completely performed every and all conditions upon their part under said contracts Exhibits "A" and "B"; plaintiff denies that there is now due from plaintiff or the Los Angeles Gas and Electric Company, or either of them, to the defendant, the sum of \$8,210.95, with interest thereon from April 1st, 1910, or any sum at all.

WHEREFORE, plaintiff prays that defendant recover nothing by its cross-complaint. [116]

Plaintiff for answer to defendant's third cause of action and cross-complaint, says:

I.

The plaintiff refers to its answer to defendant's first cause of action and cross-complaint herein and makes paragraphs numbered IV, V, VI, VII, VIII,

IX, X, XI, XII, XIII, XIV, XV, XVI, and XVII, of said answer to defendant's first cause of action and cross-complaint a part of this answer to defendant's third cause of action and cross-complaint by this reference, as fully and completely as if same were herein set out at length.

II.

The plaintiff refers to its answer to defendant's second cause of action and cross-complaint herein and makes paragraphs numbered II, III, IV, and V, of said answer to defendant's second cause of action and cross-complaint a part of this answer to defendant's third cause of action and cross-complaint by this reference, as fully and completely as if same were herein set out at length.

III.

Plaintiff denies that the plaintiff or the Los Angeles Gas and Electric Company, or either of them, has failed to perform all, or any, of the conditions imposed upon them under said contract Exhibit "B," but alleges that the plaintiff and the Los Angeles Gas and Electric Company have at all times fully and completely performed all the conditions imposed upon them by said contracts Exhibits "A" and "B." [117]

IV.

Plaintiff admits that on the 25th day of February, 1910, it served notice upon the defendant requiring the defendant to proceed with the final test of said apparatus, as provided in said contract Exhibit "B," on March 1, 1910; plaintiff denies that the defendant consented to commence the test on March

10, 1910, in order to prevent conflict with the plaintiff, but alleges that the defendant stated to the plaintiff on the 28th day of February, 1910, that it did not desire to commence the final test on March 1, 1910, because of the absence of one of its erectors, and requested that the plaintiff allow defendant until the 10th day of March, 1910, within which to start said test; plaintiff denies that the defendant was not ready on the 10th day of March, 1910, to commence said test, or that the plaintiff knew that the defendant was not ready, but plaintiff alleges that the defendant had been engaged for months in making changes in said apparatus, and in experimenting with said apparatus for the purpose of placing it in as perfect condition as possible for said test; plaintiff alleges that the defendant had taken more than a reasonable time after the completion of its preliminary test under said contract Exhibit "B" before it commenced on the final test of said apparatus on March 10, 1910, and alleges that the defendant was, on the 10th day of March, 1910, ready to commence said test.

V.

Plaintiff denies that it did not furnish to the defendant lamp-black not containing more than ten (10%) per cent moisture, to make said test, and plaintiff [118] alleges that all of the lamp-black furnished by the plaintiff to the defendant during said test was lamp-black containing less than ten (10%) per cent of moisture. Plaintiff alleges that before the defendant and the plaintiff entered into contract Exhibit "A," that the defendant was fully

informed of the character of the fuel which the Los Angeles Gas and Electric Company desired to use in said apparatus, that the defendant was informed by the Los Angeles Gas and Electric Company that the fuel which the Los Angeles Gas and Electric Company desired to use in said apparatus was a by-product from the manufacture of gas with crude oil or petroleum, commercially, generally and by gas manufacturers known and described as lamp-black, that samples of said lamp-black, being said by-product of oil gas manufacture were sent by the Los Angeles Gas and Electric Company to the defendant for chemical analysis and examination, that the defendant was at all times familiar with, and had knowledge of the exact chemical composition of the fuel which was furnished to it at all times during the operation and test of said apparatus; plaintiff alleges that all of the lamp-black fuel furnished to the defendant by the Los Angeles Gas and Electric Company and by the plaintiff during the operation and test of said apparatus was lamp-black which was obtained as a by-product from the manufacture of gas with crude oil and petroleum in the plant of the Los Angeles Gas and Electric Company and of the plaintiff, and was fuel of the same character and quality as that examined by the defendant before the execution of the contract Exhibit "A" and was a substance and material, commercially, generally and by gas manufacturers known and described as lamp-black. Plaintiff alleges that the defendant knew at all times that the lamp-black furnished to it under the con-

tract during said test was not chemically pure carbon, and that said lamp-black furnished by the plaintiff [119] and by the Los Angeles Gas and Electric Company contained not more than ten (10%) per cent of other substances than chemically pure carbon; that the Los Angeles Gas and Electric Company nor the plaintiff promised at any time to furnish the defendant with chemically pure carbon, nor did the defendant at any time expect to receive same, or request that the plaintiff or the Los Angeles Gas and Electric Company furnish it with fuel of any chemical character different from that furnished to it at all times during the operation and test of said apparatus. Plaintiff denies that the lamp-black furnished by it or by the Los Angeles Gas and Electric Company to the defendant contained, in addition to the ten (10%) per cent of moisture, more than ten (10%) per cent of other substances than chemically pure carbon. Plaintiff denies that the defendant did not discover until after April 1st, 1910, that the fuel so furnished by the plaintiff was not chemically pure carbon but was a substance containing lamp-black and other substances; plaintiff alleges that the defendant at all times after the execution of said contracts Exhibits "A" and "B," and for some time prior to the execution of the contract Exhibit "A," knew that the lamp-black which was to be furnished to it for the operation and test of said apparatus would not be chemically pure carbon, and knew that the lamp-black which was to be furnished to it during said test would be fuel of the exact chemical

composition as was the lamp-black which was furnished to the defendant by the Los Angeles Gas and Electric Company and by the plaintiff at all times. Plaintiff denies that the substances contained in said fuel furnished by plaintiff, other than the chemically pure carbon contained therein, would not make gas, or was not fitted to make gas, or was detrimental to, or injurious to the machinery or process of making [120] gas or caused consumption of fuel to drive off or consume the substances other than lamp-black contained in said fuel.

Plaintiff alleges that the other substances contained in said lamp-black furnished to the defendant, other than chemically pure carbon, was capable of and fitted for the making of gas.

Plaintiff alleges that the capabilities of said other substances than chemically pure carbon for gas making, and their effect on said apparatus and machinery were all known to the defendant prior to the execution of said contracts Exhibits "A" and "B" and at all times thereafter. Plaintiff denies that the said apparatus was prevented from making many, or any, thousands of cubic feet of gas in addition to what it did make during said test, by reason of the character of fuel furnished by the plaintiff or the Los Angeles Gas and Electric Company to the defendant during said test. Plaintiff denies that said apparatus or set was damaged or injured by reason of the attempt to consume such substances furnished by the plaintiff or the Los Angeles Gas and Electric Company to the defendant for fuel. Plaintiff alleges that all of the fuel mate-

rial furnished by it to defendant for the purpose of making said final test was a substance and material commercially, generally and by gas manufacturers known and described as lamp-black, and that said material contained not more than ten (10%) per cent moisture.

VI.

Plaintiff denies that the fuel furnished by the plaintiff was not furnished in a scientific shape, or in the usual way, or according to the understanding between the defendant and the Los Angeles Gas and Electric Company or the plaintiff, or according to good practice for handling such fuel. Plaintiff alleges that it is not aware of any possible condition into which said fuel might be formed into, which could be termed "scientific shape." Plaintiff [121] denies that there was any understanding between the defendant or the Los Angeles Gas and Electric Company or the plaintiff as to the shape or form in which said fuel should be furnished to the defendant. Plaintiff denies that the said fuel should have been dried until it contained less than ten (10%) per cent moisture and then pressed into bricks. Plaintiff denies that the fuel furnished by it crumbled into dust after being put into the fire in said apparatus, or packed the fuel bed, or seriously or at all interfered with, or prevented proper combustion thereof.

Plaintiff denies that the adhesive properties of the bricks furnished defendant by it would have been any greater, or of any greater tensile strength, if the said lamp-black had been dried and then pressed into the form of bricks; plaintiff denies that the exterior of

the bricks furnished by the plaintiff to the defendant were drier than the interior, or that when said bricks were used the moisture on the interior of the said bricks caused the said bricks to expand more rapidly than the exterior, or caused said bricks to burst into fragments or into powder, or to break at all, or smother out the fire; denies that the said bricks would not hold their shape or stand the fire necessary to produce combustion or produce gas. Denies that the said bricks were defectively moulded, or that the moulds were not filled with the material prior to their being compressed.

Plaintiff denies that the conduct of the plaintiff in furnishing said bricks in the shape in which they were furnished is or was contrary to practice and contrary to good workmanship, or that it compelled the defendant to shut down the apparatus three days, or at any time or at all, to [122] permit cleaning out the carburetter from accumulated fine carbon, or for any other reason, which had closed up the gas passages or necessitated the removal of brick work or replacement of same before gas making could be continued. Plaintiff alleges that the shutting down of said apparatus was not the result of any fault or neglect on the part of the plaintiff, or its servants, or agents, or employees.

VII.

Plaintiff denies that in the manufacture of gas or in the operation of apparatus such as was erected by the defendant at plaintiff's plant, it is the usual custom, or usual practice, or custom or practice at all, of all or any manufacturers of gas to shut down such

apparatus one day out of every seven, or more often than one day a month for the purpose of cleaning out said apparatus, or cooling the same, or for any other purpose at all; denies that the defendant understood at the time said test was commenced, or at any other time, that such custom or practice of shutting down one day in every seven would be followed in the operation of said apparatus. Plaintiff alleges that when the defendant commenced said test it was expressly understood and agreed that said test was to continue for twenty (20) consecutive days; plaintiff denies that it refused to allow the defendant, during said test, to shut down said machine or to stop the same one day in each week for the purpose of cleaning the said apparatus or cooling the same, but plaintiff alleges that it did at all times refuse to allow the defendant to exclude the time consumed in shutting down said apparatus in the computation of the amount of gas produced by said apparatus during said final test. Plaintiff denies that the necessity [123] for cleaning said apparatus, if any necessity existed, was increased by reason of the fuel furnished by the plaintiff to the defendant, and denies that the fuel so furnished was defective. Plaintiff denies that the defendant has always insisted that it was entitled to have one day in each week when said apparatus should not run for the purpose of cleaning same, but plaintiff alleges that such idea was never advanced by the defendant until during the performance of said final test and the defendant discovered that its apparatus was so faulty in construction and design that it was impossible to operate same for

more than a few days successively without shutting it down for cleaning out and repairs. Plaintiff alleges that it is not usual or customary or necessary in operating gas apparatus of the type and character which the apparatus installed by the defendant purported to be, to shut the same down one day out of every seven days, or shut them down at all more often than one day a month, for any purpose whatever, except barring accidents. Plaintiff denies that the defendant never consented that the test of twenty (20) days between March 10, 1910, and April 1, 1910, was a test in accordance with the contract between the parties as should be interpreted according to the usual custom and practice, or in accordance with said contracts Exhibits "A" and "B"; in this regard, plaintiff denies that the defendant proceeded with the said test under protest, or continually or at all protested to the plaintiff that it was not ready to commence said test, or to continue said test. Plaintiff denies that the defendant claimed that it was entitled to shut down or stop the operation of said machinery one day in every week for the purpose of cleaning or cooling same, at any time prior to the commencement of said test, nor did the defendant so claim [124] until near the completion of said test. Plaintiff denies that if the defendant had been permitted to operate the said machine in accordance with the contract, or according to the usual course or custom or practice in the operation of such apparatus or set that the defendant would, during said operating period, have produced more than three million (3,000,000) cubic feet or more than 1,750,000 cubic

feet, per twenty-four (24) hours, or would have established an average capacity of said machine to be more than 1,750,000 cubic feet per twenty-four (24) hours; denies that said defendant was denied the privilege or opportunity to operate said machine in accordance with the said contract, or according to the usual course or custom in the operation of such apparatus. Plaintiff denies that said apparatus reached a capacity of 2,700,000 cubic feet during said first twenty-four (24) hours of said test, or that said apparatus was unable to maintain a capacity of 2,700,000 cubic feet per twenty-four (24) hours because of the fuel furnished to it by the plaintiff, or to the rapid or any accumulation of dust from same, carried over into the fixing chambers, or which was combined with deposits from the oil or thus closed the gas passages in fixing chambers.

Plaintiff denies that there has never been any test of said apparatus. Plaintiff alleges that there has been a final test of said apparatus, as hereinbefore set forth. Plaintiff denies that it performed any of the acts set forth in paragraph V of the defendant's third cause of action and cross-complaint, at the instance or with the consent of the Los Angeles Gas and Electric Company. [125]

VIII.

Plaintiff denies that the defendant has been damaged in the sum of Ten Thousand (\$10,000) Dollars, or in any sum at all, by reason of any of the acts of the plaintiff or of the Los Angeles Gas and Electric Company, whether as set forth in defendant's third cause of action and cross-complaint or otherwise or at all.

IX.

Plaintiff denies that the Los Angeles Gas and Electric Company or the plaintiff refused to allow the defendant to make any test of said apparatus or set, or to demonstrate its capacity with lamp-black containing not more than ten (10%) per cent moisture as provided in said contract. Plaintiff denies that there is due to the defendant the sum of Eight Thousand Two Hundred Ten and 95/100 (\$8,210.95) Dollars, with interest from April 1st, 1910, or any sum at all.

Plaintiff denies that by reason of the alleged damage to the defendant by reason of any of the alleged facts set forth in the defendant's third cause of action and cross-complaint, there is due to the defendant from the plaintiff or from the Los Angeles Gas and Electric Company the sum of Eighteen Thousand Two Hundred Ten and 95/100 (\$18,210.95), or any other sum at all.

WHEREFORE, plaintiff prays that defendant recover nothing by its cross-complaint.

WM. A. CHENEY,
HERBERT J. GOUDGE,
LEROY M. EDWARDS,
Attorneys for Plaintiff. [126]

State of California,
County of Los Angeles,—ss.

A. B. Day, being first duly sworn, deposes and says: That he is an officer, to wit, Assistant Secretary of the corporation plaintiff mentioned in the foregoing Answer to Cross-complaint; that he has read the said answer and knows the contents thereof, and that the

same is true of his own knowledge, except as to the matters therein stated on information or belief, and as to those matters, that he believes it to be true.

A. B. DAY.

Subscribed and sworn to before me this 11th day of October, 1910.

[Seal] PAUL OVERTON,

Notary Public in and for the County of Los Angeles,
State of California.

[Endorsed]: Original. No. 1558. Dept.
In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division: Los Angeles Gas and Electric Corporation, a Corporation, Plaintiff, vs. The Western Gas Construction Company, a Corporation. Answer to Cross-complaint. Received Copy of the Within Answer this day of Oct., 1910. Oscar A. Trippet, Attorneys for Defendant. Filed Oct. 20, 1910. Wm. M. Van Dyke, Clerk. Chas. N. Williams, Deputy. Wm. A. Cheney, LeRoy M. Edwards, Herbert J. Goudge, 645 So. Hill St., Los Angeles, Cal., Attorneys for Plaintiff. [127]

In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division.

No. 1558.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant.

Amendments to Complaint.

Comes now the plaintiff in the above-entitled action, and, by leave of the Court first had and obtained, files these its amendments to the complaint of the plaintiff already on file in said cause, as follows, to wit:

I.

Amend paragraph XVI of the complaint so that the same shall read as follows:

“That the defendant, without any fault on the part of the plaintiff, failed during said final test under said contract of July 12, 1909, to bring the said apparatus to an established gas making capacity as defined in said contract, of at least 2,000,000 cubic feet per twenty-four (24) hours, of the kind of gas specified in said contract, with the same economy of lamp-black fuel containing not more than ten (10%) per cent moisture, provided for in said contract; that said apparatus did not during said final test obtain

or reach an average capacity of two million (2,000,-000) cubic feet of gas per twenty-four (24) hours for twenty (20) consecutive days, but during said test said apparatus produced an average of much less than two million (2,000,000) cubic feet of gas per twenty-four (24) hours, [128] to wit, an average not exceeding one million seven hundred and fifty thousand (1,750.000) cubic feet of gas per twenty-four (24) hours; that said apparatus did not during said test produce gas upon an average consumption of thirty-five (35) pounds, or less, of lamp-black containing not more than ten (10%) per cent moisture, per thousand cubic feet of gas made, but said apparatus did during said test consume on the average of thirty-nine and 58/100 (39.58) pounds of lamp-black containing less than ten (10%) per cent moisture, per thousand cubic feet of gas made; that said apparatus did not during said test produce gas of a candle-power equal to that specified in said contract of July 12, 1909, in that the average candle-power of the gas produced during said test did not exceed eighteen and 9/10 (18.9) candle-power; that said increased consumption of lamp-black by said apparatus during said test, over and above that provided in said contract, and the decreased gas-making capacity of said apparatus from that provided for in said contract, greatly increased the cost of production of gas by said apparatus, per thousand cubic feet of gas made, over and above what the cost would have been had defendant's apparatus performed according to the guarantees of said contract. That said apparatus is of no value to plaintiff, by reason of its failure to

perform according to said contract."

WM. A. CHENEY,
HERBERT J. GOUDGE,
LEROY M. EDWARDS,

Attorneys for Plaintiff. [129]

State of California,

County of Los Angeles,—ss.

R. M. Adams, being first duly sworn, deposes and says: That he is an officer, to wit, Secretary of the corporation plaintiff mentioned in the foregoing Amendments to Complaint; that he has read the said Amendments and knows the contents thereof, and that the same is true of his own knowledge except as to the matters therein stated on information or belief, and as to those matters that he believes it to be true.

[Seal]

R. M. ADAMS.

Subscribed and sworn to before me this 15th day of September, 1911.

PAUL OVERTON,
Notary Public in and for the County of Los Angeles,
State of California.

[Endorsed]: No. 1558. Dept. In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division. Los Angeles Gas and Electric Corporation, a Corporation, Plaintiff, vs. The Western Gas Construction Company, a Corporation, Defendant. Amendments to Complaint. Received Copy of the Within Amendments this day of September, 1911., Attorneys for Defendant. Filed September 21st, 1911. Wm. M. Van Dyke, Clerk. By Chas. N. Will-

iams, Deputy Clerk, Wm. A. Cheney, Herbert J. Goudge, LeRoy M. Edwards, 645 South Hill Street, Room 31, Los Angeles, Cal., Attorneys for Plaintiff.
[130]

In the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division.

No. 1558.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant.

Amendment to Answer to Complaint as Amended.

The defendant, by leave of the Court first had and obtained, amends its first answer by adding at the close of paragraph VII of said first answer of said defendant the following allegation and denial:

The defendant denies that on the 30th day of March, 1910, at 6:00 o'clock A. M. or at any other time, the defendant completed its said final test, or notified plaintiff to that effect, or shut down its said apparatus, or ceased making gas therein. The defendant admits that said apparatus was shut down, and that there was a cessation of making gas therein, but that said machine was shut down, and the making of gas ceased by reason of the fact that the plaintiff would not further co-operate with the defendant in operating said machine or making said gas, and re-

fused further to permit the defendant to continue said test.

As to the allegations contained in paragraph numbered XVII of the complaint, the defendant adds to paragraph IX of the first answer the following allegations:

That the top of the generator, on the 30th day of March, 1910, leaked badly, making it extremely inconvenient and disagreeable for the gas-makers and helpers on the floor; that [131] this was a mechanical defect and could be easily remedied upon the discovery of the same, and the defendant intended to, and offered to the plaintiff to take off the head of said generator and put proper gaskets between the flanges, which operation was simple and would have overcome said difficulty; and the defendant intended to put "I" beams across the top of the generator as stiffners, and to re-set the coal-hole branches, placing asbestos gaskets between the flanges and the top of the generator, in order to remedy the said alleged defects complained of by the plaintiff, and the said defendant so notified the plaintiff that said work would be done; and while the defendant does not know whether the bricks in the superheater had fallen down, the defendant offered to the plaintiff to replace said brick, if such had fallen down, and to put them in proper and good shape, all of which offer was made to the plaintiff by the defendant on April 6, 1910.

OSCAR A. TRIPPET,
WARD CHAPMAN,
Attorneys for Defendant. [132]

State of California,
County of Los Angeles,—ss.

O. N. Guldin, being by me first duly sworn, deposes and says, that the Western Gas Construction Company, defendant herein, is a corporation, and that affiant is an officer thereof, to wit, its president, and makes this verification for and on behalf of said corporation, that he has heard read the foregoing Amendment to Answer of Complaint as Amended and knows the contents thereof, and that the same is true of his own knowledge, except as to the matters which are therein stated upon his information or belief, and as to those matters that he believes it to be true.

[Seal]

O. N. GULDIN,
TRIPPET.

Subscribed and sworn to before me this 18 day of September, 1911.

LOU LOU COOMBS,
Notary Public in and for the County of Los Angeles,
State of California.

[Endorsed]: Original, No. 1558. Dept. In the Circuit Court of the U. S., 9th Circuit, So. District of Cal., So. Div. Los Angeles Gas & Electric Corporation, Plaintiff, vs. The Western Gas Construction Company, Defendant. Amendment to Answer to Complaint as Amended. Received Copy of Within this 18th of Sept., 1911. L. M. Edwards, Wm. A. Cheney, Herbert J. Goudge, Attorney for Plaintiff. Filed September 21st, 1911. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. Oscar

A. Trippet, Ward Chapman, 315 Coulter Building,
213 So. Broadway, Los Angeles, Cal., Attorney for
Defendant. [133]

*In the United States Circuit Court, Ninth Circuit,
Southern District of California, Southern Division.*

No. 1558.

LOS ANGELES GAS AND ELECTRIC CORPO-
RATION (a Corporation),

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COM-
PANY (a Corporation),

Defendant.

Judgment.

This cause came on regularly for trial before the Court without a jury, a jury having been waived, and the plaintiff was represented by its attorneys, Messrs. Herbert J. Goudge and LeRoy M. Edwards, and the defendant by its attorneys Messrs. Oscar A. Trippet and Ward Chapman, and the evidence on behalf of the plaintiff having been introduced in support of the allegations of its complaint as amended, and on behalf of the defendant in support of its answer and cross-complaint having been adduced, and the Court having made and filed its findings of fact and conclusions of law, and ordered judgment accordingly:

NOW, THEREFORE, by virtue of the law and by reason of the premises aforesaid, it is considered by

the Court, that plaintiff is not entitled to recover against the defendant the amount prayed for in its complaint, or any sum whatever, and that it take nothing by its suit.

AND IT IS FURTHER considered by the Court, that defendant is not entitled to recover against the plaintiff the amounts prayed for in its cross-complaint, nor any sum, and that defendant take nothing against plaintiff by its said cross-complaint, and that neither party recover costs of suit.

Dated, November 6th, 1911.

Judgment entered November 6th, 1911.

WM. M. VAN DYKE,

Clerk.

By Chas. N. Williams,

Deputy Clerk. [134]

[Endorsed]: No. 1558. U. S. Circuit Court, Ninth Circuit, Southern District of California, Southern Division. Los Angeles Gas & Electric Corporation (a Corporation), Plaintiff, vs. Western Gas Construction Company (a Corporation), Defendant. Copy of Judgment. Filed Nov. 6, 1911. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. [135]

[Certificate to Judgment-roll.]

In the Circuit Court of the United States, Ninth Judicial Circuit, in and for the Southern District of California, Southern Division.

No. 1558.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant.

I, Wm. M. Van Dyke, Clerk of the Circuit Court of the United States, for the Ninth Judicial Circuit, Southern District of California, do hereby certify the foregoing to be a true copy of the judgment entered in the above-entitled action, and recorded in Judgment Book No. 2 of said Court for the Southern Division, at page 142 thereof, and I further certify that the foregoing papers hereto annexed constitute the Judgment-roll in said action.

Attest my hand and the seal of said Circuit Court, this 6th day of November, A. D. 1911.

[Seal]

WM. M. VAN DYKE,
Clerk.

By Chas. N. Williams,
Deputy Clerk. [136]

[Endorsed]: No. 1558. In the Circuit Court of the United States, Ninth Judicial Circuit for the Southern District of California, Southern Division. Los

Angeles Gas & Electric Corporation vs. Western Gas Construction Company. Judgment-roll. Filed November 6th, 1911. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. Recorded Judgment Register Book No. 2, page 142. [137]

C. C. No. 1558.

In the United States District Court, Southern District of California, Southern Division.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant.

Engrossed Bill of Exceptions.

Filed Mar. 22, 1912. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. [138]

In the United States District Court, Southern District of California, Southern Division.

No. 1558.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant.

Engrossed Bill of Exceptions.

Be it remembered that heretofore, this cause came on regularly for trial before the above-entitled court, without a jury (a jury having been duly waived by written stipulation of both parties filed of record on the 22d day of September, 1911), and proceeded from day to day until the trial was completed on the 11th day of October, 1911.

The Hon. Olin Wellborn presiding, plaintiff being represented by William A. Cheney, Esq., Herbert J. Goudge, Esq., and Leroy M. Edwards, Esq., its attorneys, and the defendant by Oscar A. Trippet, Esq., and Ward Chapman, Esq., its attorneys, the following proceedings, and none other, were had, and the following testimony, and none other, was taken:

[139]

[Testimony of C. A. Luckenbach, for Plaintiff.]

C. A. LUCKENBACH, a witness called on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct Examination.

My name is C. A. Luckenbach. I am forty-six years old and reside in the city of Los Angeles. I have been manager of construction of the Los Angeles Gas and Electric Corporation since its incorporation, in August, 1909. Previous to that I was manager for the Los Angeles Gas and Electric Company. As such manager I have charge of all the works—work in and outside of the plant, and all repair work involving changes from what existed at the time of the beginning of the repairs.

(Testimony of C. A. Luckenbach.)

Q. I will ask you, Mr. Luckenbach, whether you had any negotiations in the year 1907, and if so, when, with The Western Gas Construction Company with reference to procuring apparatus for the manufacture of gas?

A. I had negotiations with them, beginning early in 1907. Prior to April, 1907.

Q. With whom did you first have negotiations for the purchase of apparatus in the year 1907 from the Western Gas Construction Company?

A. I believe the matter was first taken up in a conversation with Mr. B. F. Pederson, who is the representative in San Francisco.

Q. You say he was the representative in San Francisco of The Western Gas Construction Company? A. Yes, sir.

Q. State what the negotiations were that you first had with him with reference to the purchase from his company of a gas machine. What kind of machine it was, and what the negotiations were.

A. We asked them for prices and specifications and [140] guarantees upon one and upon two sets to produce 3,000,000 cubic feet of gas per day.

Q. Were these negotiations in the beginning oral or written?

A. To the best of my recollection the very first was oral, and later there was considerable correspondence.

Q. You did have correspondence with Mr. Pederson?

A. Both with Mr. Pederson and direct with the

(Testimony of C. A. Luckenbach.)

Western Gas Construction Company.

Q. I will ask you to look at this document of two pages that I hand you, and state whether you recognize it. A. Yes, sir.

Q. State what it is, without stating its contents.

A. It is a letter addressed by Mr. Pederson to the Los Angeles Gas and Electric Company, to my attention.

Q. Date? A. February 20, 1907.

Q. Did you receive this letter sometime subsequent to the day it bears date? A. I did.

Mr. GOUDGE.—We desire to offer this letter in evidence.

Mr. CHAPMAN.—No objection.

Mr. GOUDGE.—The negotiations between the parties and their situation with reference to this contract will be more briefly and clearly shown by the correspondence that took place between them, and we have a series of letters that tell the whole story, which we will identify and introduce; and, with your Honor's permission, I will read the letters as they are introduced.

(Mr. Goudge thereupon reads the letter of February 20, 1907, in evidence, and the same was introduced in evidence, filed, and marked Plaintiff's Exhibit 1, and is as follows:) [141]

Plaintiff's Exhibit No. 1.

San Francisco, Cal., February 20, 1907.

Attention Mr. Luckenbach.

Los Angeles Gas and Electric Company,

Los Angeles, California.

Gentlemen:—

I am informed by the Fort Wayne office that they have furnished you with specifications and price on our gas apparatus, in accordance with your inquiry made to me personally. They also stated that they have sent you blue-prints, showing plan and elevation of apparatus, all of which will give you a definite idea of what we propose to furnish you. You may be sure that if we secure your work, it will be furnished you in first-class manner, and will be given our personal attention. If you so desire, you may specify in the contract that the erection of work should be under the immediate supervision of myself, though we have other engineers who are fully competent, if not more so, to take care of this work; and the building of works of this size would require the attention of a graduate engineer, so that there can be no question of method of erection and general details. Our guarantee of efficiency will be absolute, the quality of material being stated.

Personally we have had very little experience with lamp-black as fuel for our gas apparatus, but from a general knowledge would imagine that lamp-black being pure carbon, would make ideal fuel in the water-gas machine.

The question of oil consumption per thousand

(Testimony of C. A. Luckenbach.)

would depend largely on the quality of oil and candle-power of gas desired; but by looking over our specifications you will no doubt understand why our apparatus is better designed to take care of this than any other on the market at the present [142] time.

Trusting that you will give us an opportunity to go into this matter with you so that the entire question is fully understood, and hoping that you will call upon the writer when you are ready to consider it, I remain,

Yours truly,

B. S. PEDERSON. [143]

Defendant stipulated that Mr. Pederson was the San Francisco representative of the Western Gas Construction Company.

Q. (By Mr. GOUDGE.) I call your attention, Mr. Luckenbach, to the remark in this letter made by Mr. Pederson that the Fort Wayne office is furnishing you specifications and prices on water-gas apparatus in accordance "with your inquiry made to me personally." State what the inquiry you made to Mr. Pederson was.

A. I asked for figures on one set and two sets to produce 3,000,000 cubic feet of gas per day.

Q. Did you state what material was to be used?

A. Yes, sir; we were to use lamp-black as the fuel.

Q. Did you give any further description of that than the expression "lamp-black"?

(Testimony of C. A. Luckenbach.)

A. No, not except—I don't think I ever used any other expression than lamp-black.

Mr. GOUDGE.—We would ask for the production of the letter written by Mr. Luckenbach to The Western Gas Construction Company of March 5, 1907.

Mr. CHAPMAN.—You may use the copy, if you like.

Mr. TRIPPET.—You may use the copy. I don't know whether we have the original or not.

Mr. EDWARDS.—You waive the fact that it is a copy?

Mr. TRIPPET.—Yes.

Q. (By Mr. GOUDGE.) I will ask you to state if you recognize that document?

A. I do.

Q. Is that a true copy of the letter sent by you to The Western Gas Construction Company of March 5, 1907? A. Yes, sir.

Q. And it was mailed by you to that company?

A. It was. [144]

Mr. GOUDGE.—We desire to introduce that in evidence.

Mr. CHAPMAN.—No objection.

(Said letter is admitted in evidence as Plaintiff's Exhibit 2, and was read in evidence, and is as follows:) [145]

Plaintiff's Exhibit No. 2.

March 5th, 1907.

19-w

The Western Gas Construction Co.,
Fort Wayne, Indiana.

Gentlemen:—

Sometime since you sent us blue-prints of a 13 ft. water-gas set, together with your figures for furnishing the same. We have gone over the matter with your Mr. Pederson with reference to the guarantees on this set. He is familiar with the material that we intend to use, instead of coal, and when he left here, we understood he would take the matter up with you, and send us a statement of the guarantees on this set.

In going over the matter he gave us the following:

Using carbon, containing not more than 10 per cent of water, 35 pounds of carbon would be necessary per thousand cu. ft. of gas made; dry carbon, 30 pounds per thousand cu. ft. of gas made; oil consumption, 4 gals. per thousand cu. ft.

We are anxious to decide this matter very quickly, and will, therefore, ask you to reply to us at once, giving your guarantees on this set, not only as to consumption of carbon and oil per thousand cu. ft., but also your guarantee as to the maximum make that this set is good for per 20-hours, which we understand is from 2,800,000 to 3,200,000 cu. ft.

In order that no misunderstanding may occur, the carbon to which we refer is a by-product from the manufacture of oil-gas with which you are un-

(Testimony of C. A. Luckenbach.)

doubtedly familiar. The way we are handling this at present is: We convey it from the wash-box by flume to settling pits, where the water is [146] drained off, and then the carbon is either passed through a dryer or hauled into piles and sun-dried, and then made into bricks or taken in large lumps from the pile and put into the generator.

We are now negotiating for the purchase of a dryer to handle all our product and anticipate that this dryer will turn out our carbon with from 5 per cent to not to exceed 10 per cent of moisture. After passing the dryer the same will be bricked for use in the generators.

Probably Mr. Pederson has written you and you have replied before this, but to be on the safe side, we are writing you in reference to the matter.

Yours respectfully,
LOS ANGELES GAS AND ELECTRIC
COMPANY.

By C. A. LUCKENBACH,

Manager of Construction. [147]

Q. (By Mr. GOUDGE.) I call your attention to this document and ask you if you recognize it?

A. I do. It is a letter addressed to me by the Western Gas Construction Company dated March 11, 1907, and signed by Mr. Guldlin.

Q. You have seen this letter? A. Yes, sir.

Mr. GOUDGE.—We offer this letter in evidence.

(Read in evidence and marked Plaintiff's Exhibit 3, and is as follows:) [148]

Plaintiff's Exhibit No. 3.

Fort Wayne, Indiana, March 11, 1907.

C. A. Luckenbach, Manager of Construction,
Los Angeles Gas and Electric Company,
Los Angeles, California.

Dear Sir:—

Your favor of the 5th, 19-w, just received, in reference to fuel, etc., to be used in the proposed water-gas plant.

We have not, as yet, received from Mr. Pederson information on the subject of your special fuel, and we have wired him for same.

We are familiar with the lamp-black made in oil-gas manufacture being dried and used for boiler firing, and also that this fuel might be bricked for more general use. We infer from your letter that your company has carried out this idea, and are already using such fuel in your present water-gas generators, and of course, if such is the case, it can be used in ours where the divided blast, which our Mr. Pederson undoubtedly explained to you, should present additional advantages in handling such fuel.

We are rather surprised, however, to note your statement that you can take this lamp-black in large lumps from a sun-dried pile and use same in generator, as the writer would hardly believe the fuel would be compact enough to retain its shape in a deep fuel bed by having merely been sun-dried. Will you kindly advise us what depth of fuel bed you have been able to handle in your generator with the fuel in this condition. The natural inference

(Testimony of C. A. Luckenbach.)

would be that the lumps would crumble up and pack over the grate and in the lower part of the fire.
[149]

If you will kindly give us the benefit of your experience on the above lines, and with the information we will also receive from Mr. Pederson, we shall be able to forward you proper guarantees as to the performance of the proposed machines. We regret very much that Mr. Pederson's information if mailed, should not have reached us, or that he should have overlooked forwarding such, but under the circumstances, trust you will grant us the additional time to arrive at proper conclusions.

Yours very truly,
THE WESTERN GAS CONSTRUCTION
COMPANY,

O. N. GULDIN,

C-P.

President. [150]

Q. (By Mr. GOUDGE.) I ask your attention to this document, and ask you to state what it is, if you can recognize it?

A. It is a letter addressed by me to The Western Gas Construction Company under date March 19, 1907, answering the communication of the 11th inst.—the 11th of March.

Q. This is a copy. It is a true copy of the letter you mailed at that time to them? A. It is.

Mr. GOUDGE.—There is no objection on account of its being a copy? We offer it in evidence.

(Said letter is read in evidence and marked Plaintiff's Exhibit No. 4, and is as follows:) [151]

Plaintiff's Exhibit No. 4.

March 19, 1907.

In replying kindly refer to No. 19-w.

The Western Gas Construction Company,

Fort Wayne, Indiana.

Gentlemen:—

We have your letter of the 11th instant, answering ours of the 5th instant, in reference to the use of fuel in water-gas generator sets. We understand that you are familiar with lamp-black or carbon made in oil-gas manufacture and, therefore, could tell us how much carbon, with a certain percentage of water, would be necessary to produce 1000 cu. ft. of gas in your generating set. We should be pleased to have you give us a guarantee stating the number of pounds of carbon from oil-gas manufacture, containing say 5 per cent of moisture which would be necessary for 1000 cu. ft., and the amount of increase for each 1000 cu. ft. with each percentage of increase of moisture.

You ask us the depth of fuel bed that we are using. I would say that we are using a bed of about seven feet in depth in our water-gas generators.

To date you have given us absolutely no guarantees as to what the sets, the drawings of which you have forwarded us, will do. We must have these guarantees, and trust you will forward them to us by return mail.

We also note in your specifications that you provide that we shall unload and cart all material from the nearest railroad switch on arrival and deliver the same to the contractor outside of the generator house. We have a switch right close to where will erect this

(Testimony of C. A. Luckenbach.)

set, and if hauled from the depot the probable cost will be 50 cents per ton. [152] We must insist upon including this cost in your bid, and will ask you to give us by return mail a figure including everything for the set or sets erected on foundation to be furnished by us. Please let us have this reply at the earliest possible moment.

Yours respectfully,
**LOS ANGELES GAS AND ELECTRIC
COMPANY,**

By C. A. LUCKENBACH,

Manager of Construction. [153]

Q. (By Mr. GOUDGE.) I will call your attention to this document and ask you if you can identify it to please state what it is.

A. It is a letter from The Western Gas Construction Company, addressed to the Los Angeles Gas and Electric Company, under date March 20, 1907.

Mr. GOUDGE.—I offer this in evidence.

(Said letter is read in evidence and marked Plaintiff's Exhibit No. 5, and is as follows:) [154]

Plaintiff's Exhibit No. 5.

Fort Wayne, Indiana, March 20, 1907.

Los Angeles Gas and Electric Company,

Los Angeles, California.

Gentlemen:—

We have received your wire late yesterday afternoon as follows:

“Wire guarantee one set anthracite coal for both coal and oil.”

We immediately wired to our San Francisco office

for advice from our Mr. Pederson in order to have him arrange for an immediate visit. Unfortunately, we have not, as yet, heard from him, due to the fact that he is North—although there is a possibility of his being on the way towards Los Angeles, as some business matters require his attention at an intermediate point.

We feel it would be much more desirable for him to call on you in person to discuss the guarantees more fully and intelligently than we could do it from this office, he being personally well acquainted by a large number of years experience with the different qualities of anthracite and oils used on the coast, and would be better able to form the guarantee to apply to your gas-making materials available, or intended to be used by you. In our guarantee for anthracite coal, we presume you likely refer to Welsh anthracite, of which you know there is quite a variation in quality which is not entirely governed by the percentage of combustible. There is also considerable variation in the quality of oil as between the extremely heavy oil and light oils in your section. We have been extremely successful, however, in handling all these different materials, and we are perfectly willing to make guarantees to that effect as well as [155] capacity of machine for which we sent you specifications and price.

We are likely to hear from our Mr. Pederson at any moment, and as stated, we much prefer, in our earnest desire to be governed by facts, that he should have an opportunity to discuss with you, as we can, no more than yourself, afford to have no misunder-

standing; nor should we for one moment consider the acceptance of a contract without absolutely knowing that we could fulfill every condition mentioned. So anxious are we on this point, that in case Mr. Pederson should have been called to the extreme North, as was his program, and business matters there of considerable importance should prevent his early return to San Francisco for a subsequent visit to Los Angeles, the writer would arrange for a speedy trip with our engineer, Mr. O. W. Twing, in order to arrive at an intelligent and satisfactory basis which would justify your placing this contract with us, if you are now ready to act in the matter. It is our intention, however, to wire you this afternoon at length in reply to your message so that you would understand we are doing everything in our power to bring before you the facts in an intelligent manner. Will state that our message will cover generally the following:

That we are confident we can guarantee from 30 to 35 pounds of anthracite, governed by quality of same, and four gal. of oil per thousand cu. ft. of gas manufactured; and the capacity of the machine from 130,000 to 150,000 cu. ft. per hour; also governed by quality of fuel, it being generally assumed that the actual hours of operation per diem will be about 20, allowing the balance of the time for cleaning, etc. It is assumed, of course, in the above guarantee, that the machine is in regular operation.

You will appreciate from the above that the quality [156] of the fuel governs not only the pounds of anthracite per thousand feet, but also the capacity

of the machine, as some of the Welsh and other anthracites have a great deal more clinker than others, and such higher or Welsh clinkering tendency makes a proportional increase in the total number of pounds required per thousand pounds and a proportional decrease in the generating capacity per hour or diem. You are, of course, familiar with this from your present practice.

In this connection we beg to say that we have in actual operation, with Welsh anthracite, a set that produces a gas with 30 pounds and less per 1000 cu. ft. Our extended-carburetter-superheater design is particularly well-fitted for the treatment of heavier grades of oil by the material increased superheating surface provided, which again means that lower heats can be carried; and it is a well-known fact that in oil, in proportion as a lower heat can be carried in the checker brick with a corresponding increase in the superheating surface, the percentage of heavy hydro-carbons and illuminants produced per gallon of oil will increase, with a corresponding reduction in light hydro-carbons, or lower illuminating hydro-carbons, such as marsh gas. Our patent divided blast and steam supply under the grate, can also satisfactorily handle a much greater variation in quality of fuel and maintain a uniform fire in such than could be accomplished in the ordinary construction. We have fully demonstrated this by actual operation.

The St. Paul Gas & Oil Company have just placed an order with us for a 11-foot extended-carburetter-superheater design at a material increase in cost of

construction, they having ascertained that the saving in fuel and oil, and increased capacity would, inside of less than two years, pay for the entire installation, as compared with their [157] present regular machine.

In reference to the construction of this set, we are now in position to handle same promptly, but the large amount of work in the market, and the large number of bids on which decision is expected shortly, indicates that we shall shortly have even our large manufacturing capacity well-taxed. If your plans are matured sufficiently to act in this matter, we would urge an early decision. This would apply to one set which we infer it is your intention to cover at the present time. The installation of the second set we could not consistently undertake, in the face of the present business prospects, except on a liberal time allowance, say, not less than six months after order. We assume we could complete the first set at the present time in from 4 to 6 months, ready to make gas, in accordance with the specification submitted to you, or in other words, if two sets were wanted, it would require the time of from one to two months after completion of the first set before we could promise the second if order is placed at one time.

In case you have made up your mind as to what guarantee you want, based on your own experience with your quality of oil and fuel, and will kindly express such, we could no doubt quickly arrive at a decision in the matter after your acceptance as to material and capacity of the apparatus we have bid

(Testimony of C. A. Luckenbach.)

on. We are quite sure that you will only ask such guarantee as will be well within reasonable, practical results obtainable, and leave us some margin for even a better showing when the machine is actually constructed, as has been our experience in all eastern concerns with this improved type of machine.

We assure you of our earnest desire to secure this contract, and also of our unsurpassed facilities for [158] executing the same to your entire satisfaction, and we trust the information given above, confirming the telegram we are sending will justify your placing this order with us.

As stated, we expect to reach our Mr. Pederson at any moment, and will hold ourselves, as indicated above, in readiness for a speedy visit in order to arrive at a definite and mutually satisfactory guarantee.

Yours very truly,
O. N. GULDLIN, President.

S.

Per T. W. S. [159]

Q. (By Mr. GOUDGE.) Now, the date of that last letter was March 28, 1907. The contract between the Gas Company and the Gas Construction Company was entered into in April, 1907, was it not?

A. April, 1907.

Q. Do you know whether prior to the time of making that contract or signing the contract of April, 1907, Mr. Pederson saw or had anyone representing the Gas Construction Company see, or had submitted to them, any samples of lamp-black that you produced?

(Testimony of C. A. Luckenbach.)

A. All I know is the statement made by Mr. Pederson to me in reference to the matter. He stated to me in my office, 645 South Hill Street, that he had samples of lamp-black.

Q. When was that?

A. Prior to making of the contract in April, 1907.

Q. Did you have any conversations with him with reference to the character of the lamp-black that you proposed or desired to use as fuel in the manufacture of gas in this water-gas set that they were expecting to bid on? A. I did not, no, sir.

Q. I show you this document and ask you if you can identify it to state what it is.

A. It is a letter addressed to me by Mr. Thwing, the chief engineer of The Western Gas Construction Company, dated December 16, 1907.

Mr. GOUDGE.—We offer this letter in evidence.

(Letter was introduced into and read in evidence and marked Plaintiff's Exhibit No. 6, and is as follows:) [160]

Plaintiff's Exhibit No. 6.

Fort Wayne, Indiana, December 16, 1907.

Mr. C. A. Luckenbach, General Manager,
Los Angeles Gas and Electric Company,
Los Angeles, Cal.

Dear Sir:—

Your letter of December 10th has been received and contents carefully noted. Your statement therein regarding the terms of completion of the water-gas set we have been building for you are correct, as is also your statement in regard to the time

that has elapsed since the date upon which the apparatus was to have been in successful operation. In extenuation of these circumstances, we feel that it is proper to call your attention to the history of this installation as it has been brought to our attention.

You will remember that on account of the failure of the Laclede Christy Products Company to fulfill their definite promises in regard to shipments of tile for this job, a very considerable delay occurred and the first of the tiles required for this installation did not arrive at Los Angeles until October 3rd, or nearly a month after the date set for the completion of the apparatus. This delay, as explained to you at the time, was through no fault or intention of our own and we had every reason to believe that it would not occur. When we learned that the delay would occur, we immediately proposed to use other methods for the completion, but by agreement between yourselves and our Mr. Scheuman it was decided to await the arrival of the material from the Laclede Christy Products Company. When this material arrived work was begun by our masons at once and from reports received since then, no trouble or expense was spared to rush this work to completion.

We desire to call your attention to the following extracts [161] from letters written by our Mr. Scheuman during the progress of this work:

Sept. 20th. "The Gas Company has only about one-half of the building foundation in. Actual work on piers necessary for the support of our charging floor and building proper was not started until September 14th."

Sept. 25th. "The foundations for the building are in and have been completed three or four days, but the walls are not started, and I was informed today that they probably would not be for another two weeks."

Oct. 3rd. "Erected as much floor as possible. Building walls not up yet."

Oct. 7th. "The steel building is now being erected. Masonry walls will be built between columns of building. I would judge it would be November 1st before this building is completed."

Oct. 21st. "We have had considerable rain for the last week which has retarded the work some. We are also working with considerable more difficulty on account of the masons on brick walls, iron workers on steel building and diggers in trenches, for gas company's pipes are very much in the way to permit the most rapid kind of work."

Oct. 22nd. "The iron work of building, brick walls, trench for 24-inch pipe-line for our condensers, lamp-black lifting arrangement and our work is all going now in a space about 45 feet by 80 feet." The rain has put the lamp-black and tar-covered ground in a fearful condition. The building walls are within 8 feet of our charging floor line." [162]

Oct. 24th. "The building walls are up to charging floor line and grate floor is now being completed. The set will be all completed in 10 days." The staging for the masons on walls is very much in our way, but will be torn out tomorrow."

Oct. 26th. "The Weather has been very bad recently and today we are having intermittent showers.

There being no roof overhead our work is progressing with considerable difficulty."

The drying out fire was put in very shortly after the last letter quoted above, and the machine was actually started on November 15th. It would appear from the above that at no time were you very much ahead of our erector with such parts of your work as were essential to the operation, and even to the completion of our machine, and that at all times during the period covered by the above letters our work was delayed and rendered difficult on account of conditions resultant from the building and other operations going on, conditions over which we had no control, and for which we have not, nor do we intend to place any blame upon you. It has been our policy, under such circumstances, to take a liberal view of such difficulties as are encountered, and to shoulder any loss which we may incur on account of such conditions without murmuring.

You said in your letter of December 10th, as follows:

"Your representatives have been, we think, for a sufficient length of time experimenting with this plant in the attempt to make it comply with the requirements of the contract." We desire to take exception to the language used in this sentence, and call your attention to the fact that our representatives have been up to the present time experimenting [163] with a class of fuel which was neither mentioned nor intended in the guarantees of the contract made by us. Our water-gas plants are entirely beyond the experimental stage of water-gas plants, and in making

the contract with you, it was specifically stated that our guarantees were placed upon "dry lamp-black" or lamp-black containing not more than 10 per cent moisture. The lamp-black briquettes furnished us at the time of this contract for our inspection were analysed and were found to contain an average of less than 3 per cent of moisture. Instead of the fuel which we had every reason to believe would be supplied, and which was specifically mentioned in the terms of our contract, we find that the fuel from which we are expected to make our guarantees good contains 35 per cent to more than 40 per cent by weight of moisture. While the reports of our Mr. Pederson indicate that the machine is making gas under these conditions, it would be remarkable if it anywhere nearly approached its proper efficiency with the fuel which is being used.

It is not our intention or desire to take advantage of any wording of the contract, or any technical points, to evade the responsibility for the operation and results of this machine, but in simple justice to ourselves, we must insist that the conditions of the terms of the contract shall be met by you as well as ourselves. The use of lamp-black as a fuel for water-gas machines was and is an absolutely new experience to us, and we were therefore, compelled, in making you our guarantee to accept the statements as to results which were obtained by our Mr. Pederson, presumably very largely through your representatives. What we do know is the efficiency of our machine as a water-gas machine, and this we are prepared to back up against any other type of water-gas machine,

(Testimony of C. A. Luckenbach.)

as we have frequently done, and always suc- ——.

[164]

We are sure you will agree with us that our representatives, Messrs. Pederson and Scheuman, have made, and are still making every effort to make this installation absolutely satisfactory to you. Neither they nor ourselves will leave anything undone with that purpose in view. It is, therefore, with regret that we note the general tone of your letter of the 10th instant, and we trust that upon more deliberate consideration, you will realize that there are two sides to this question, and that you had not one side in mind when you wrote as you did.

Yours very truly,

THE WESTERN GAS CONSTRUCTION
COMPANY.

O. O. TWING,
Chief Engineer.

A#S

c Sch.

c Ped. [165]

Q. (By Mr. GOUDGE.) After the contract of April 7th, 1907, was entered into or executed, did the defendants install the set at your works?

A. They did.

Q. And subsequently operated it? A. They did.

Q. When did they commence to operate the set that they installed under that contract?

A. My recollection is that it was some time in November, 1907, when they began to make the first gas.

Q. Do you know what the comparative capacity of

(Testimony of C. A. Luckenbach.)

the set was or was shown to be by their operations at that time?

Mr. CHAPMAN.—We object to that as calling for the conclusion of the witness. He has not qualified himself. There is no foundation laid to express an opinion or state deductions. And, moreover, we object to it as irrelevant and immaterial because certainly here we are not called upon to try the first suit that was brought in this case, as to whether the machine made good or did not in its first condition. Because, your Honor will recall, that subsequently in July, 1909, this controversy was entirely compromised and the past history of the thing wiped out, and a new test was provided for. The question is what was the result of the second test and not what result there was of the first installation.

The COURT.—I am not entirely satisfied that it will have any weight in this controversy. Perhaps the best course will be to overrule your objection to the testimony and let the record show your exception, and then later consider the circumstance. I will overrule the objection as to that and then your exception will be implied under the stipulation made.

Mr. GOUDGE.—The plaintiff excepts to the ruling of the Court. [166]

Q. (By Mr. GOUDGE.) By the expression "lamp-black" what do you mean?

A. The by-product in the manufacture of oil-gas.

Q. I call your attention to this document, and, if you identify it, please state what it is. Will you state what this document is? [167]

(Testimony of C. A. Luckenbach.)

A. It is a communication dated January 7, 1908, from the Western Gas Construction Company, by Mr. Pederson, addressed to the Los Angeles Gas and Electric Company, and received by our company through the mail.

Mr. GOUDGE.—We offer this letter in evidence and desire to read it.

Mr. CHAPMAN.—We interpose an objection to the introduction of that letter. I understand that the letter was dated January, 1908, and still bears upon the controversy that arose between the parties after the first contract was made and the machine completed. Now, it is alleged in the complaint that this contract was entered into on April 8, 1908, and that we proceeded to install the apparatus and that it did not perform the guaranty, and that thereupon they ordered us to remove the machine and return their money and that we refused to do it, and they commenced a suit, and that this controversy was pending when it was finally settled. Those allegations are admitted by the answer. There is no issue but that they claimed the machinery was not satisfactory and that they ordered the removal, and that this controversy arose. These letters are simply bearing on the disputes that arose between the parties after that machine was first operated. This letter that he now offers, as I understand it, is a letter containing—was that from our company to your company?

Mr. GOUDGE.—Yes, that was for Mr. Pederson.

Mr. CHAPMAN.—It is simply a recital by Mr. Pederson of our contention that the machine did not

(Testimony of C. A. Luckenbach.)

come up to the capacity because the conditions were not right, and that the fuel was not furnished as agreed.

The COURT.—Does it bear on the interpretation of the contract as to the fuel? [168]

Mr. CHAPMAN.—So far as I see, it does not. If the counsel's object is simply to show that after the machine was installed there were furnished by that company to our people to use in this machine lamp-black or a substance which they called lamp-black, which is a by-product of the oil-gas manufacture, we will admit that fact, and that we used it; but if they seek to show that they furnished the material in the form and of the character called by this contract—in other words, in full compliance with the contract, we deny it. And if we open up that question, it will take weeks to try, and that is what we seek to avoid by our objection. Merely that after the machine was installed we did use the by-product of their plant—from their oil-gas machines—and used it, we admit. But we deny that it complied with the contract in respect to the form in which it was bricked, and the water content, and the other impurities contained in it. We do admit that it came from their oil-gas machine, and that the parties designated it lamp-black and that we used it.

Mr. GOUDGE.—I think that that stipulation would almost cover the ground.

The COURT.—If it covers the ground, it will shorten the trial.

Mr. GOUDGE.—Yes. But I am afraid it does not

(Testimony of C. A. Luckenbach.)

go far enough. The object of this testimony is not to show or attempt to show that we performed the contract on our part prior to the execution of this contract. We don't care whether we did or not, and we don't think the Court is concerned whether we did or not prior to the making of this supplemental contract. And I will omit parts of the latter, unless counsel desires the whole letter. I want to confine this letter merely to the point or what the expression lamp-black, as used in the original and supplemental contract, means, and also that the [169] parties agreed as to what it meant and knew what it meant, and there is a part of this letter from The Western Gas Construction Company which recites and admits that the lamp-black referred to in the contract is a by-product of our manufactured gas.

The COURT.—That would be an admission of the party, I think, Mr. Chapman, if that is the purpose of it. The objection is overruled.

(Said letter was then read in evidence, marked Plaintiff's Exhibit No. 7, and is as follows:) [170]

Plaintiff's Exhibit No. 7.

HOTEL HAYWARD,
Spring and Sixth Sts.

Los Angeles.

June 7th, 1908.

To Los Angeles Gas and Electric Company,
Los Angeles, California.

Gentlemen:—

Commenting further on your letter of the 31st in which you notify us that you will discontinue operat-

ing the water-gas apparatus furnished by us, wish to call your attention to the following paragraph in a letter addressed to our company from Mr. Luckenbach, your manager of construction:

"In order that no misunderstanding may occur, the carbon to which we refer is a by-product from the manufacture of oil-gas with which you are undoubtedly familiar. The way we are handling this at present is: We convey it from the wash-box by flume to settling pits, where the water is drained off, and then the carbon is either passed through a dryer or hauled into piles and sun-dried, and then made into bricks or taken in large lumps from the pile and put into the generator.

We are negotiating for the purchase of a dryer to handle all of our product and anticipate that this dryer will turn out our carbon with from 5 per cent to not to exceed 10 per cent of moisture. After passing the dryer the same will be bricked for use in the generators."

This letter was used in connection with samples of briquetted carbon for the basis of our guaranty of capacity and efficiency. Will further call your attention to the closing sentence of the first paragraph of our letter to you, dated April 8th, as follows:

[171]

"With the use of lamp-black we guarantee that the apparatus will have a capacity of 2,750,000 to 3,000,000 cu. ft. per day of 24 hours, using dry lamp-black."

From this you will see that we at no time contem-

plated to use moist lamp-black in the procuring of capacity, the guarantee applying to the use of dry lamp-black only in this respect. On the writer's arrival here, he made the statement to Mr. Luckenbach that the material furnished us to make gas with was not in accordance with the contract, but in order to facilitate matters and help out the gas supply we were willing to work on the material you had on hand, and so far as we could do so procured results in accordance with contract, but we definitely stated that we did not give up any of our rights in the matter, but we worked merely for the convenience of the gas company. I did not desire to take any positive stand in the matter, feeling that you were probably in need of the gas that could be made on the apparatus, and would start our apparatus in your behalf in the nature of an accommodation rather than a test. We have, as yet, not had any test of the apparatus under conditions guaranteed by our contract.

We are in no way seeking to evade responsibility and we do not wish to seem arbitrary in the matter. At the same time our interests are at stake, and they are as important to us as your interests are to you, and we must now insist upon our rights under the contract which was made in good faith with you.

The repair parts of the water-cooled valve are now here, and will be immediately placed in position. When this is finished we shall be ready to operate the apparatus, and ask you to have ready for us fuel in accordance with our contract. [172]

Upon investigation, we find that there is still due us

on the 25 per cent of the contract price which was to be paid during erection the sum of \$867.84. Your Mr. Luckenbach and also Mr. Baurhyte refuse to make any further payments to us, even before the apparatus was actually in operation. This handicapped our erector in the completion of the work. It is now necessary to have funds to pay for the necessary repair work and the water-cooled valve, and we trust that you will arrange to advance the balance of the 25 per cent of the purchase price. Kindly set a date upon which you can furnish us with material as per contract, so that we may operate the machine under proper conditions, when we are positive that we can fulfill our guarantee, both as to capacity and results.

It is our intention when the repair parts are in place to test the apparatus for results, both as to capacity and economy, and if you will furnish us the material in accordance with the contract, we shall require but a very short time to make this final test. We believe that this test can be made in a very short time after we have received the proper material, and have the machine brought to a gas-making condition.

Regarding our inability to handle the material offered us by you in an economical manner, and trusting that you will reply to this letter, setting a date upon which we may make our tests, which we trust will be an early date, we are

Yours very truly,

THE WESTERN GAS CONSTRUCTION
COMPANY,

B. S. PEDERSON. [173]

(Testimony of C. A. Luckenbach.)

Q. (By Mr. GOUDGE.) I ask your attention to this document and, if you identify it, state what it is.

A. A letter addressed to the Los Angeles Gas and Electric Corporation by The Western Gas Construction Company, by Mr. Pederson, June 16, 1908, and received by me as representative of the company.

Mr. CHAPMAN.—This letter relates entirely to the matter of the test of the old machine—the first machine furnished—and sets forth the conditions under which the test shall be made, and it does express satisfaction with some features of it, and indicates that they will examine the fuel and let them know if it runs over a certain per cent of moisture. But I again say that I cannot see the relevancy of it, and I say again if they are seeking to prove those things—to show that they complied with the contract—

The COURT.—If that is the purpose of the testimony, it is clearly incompetent.

Mr. GOUDGE.—We stated a little while ago that we are not trying to show that we are complying with the old contract, because it makes no difference whether we did or not.

The COURT.—It is wholly immaterial whether you did comply or not, and it is wholly immaterial whether the defendant complied with it.

Mr. CHAPMAN.—We think there is no reference to lamp-black that would in any way bind us as a declaration or admission.

Mr. GOUDGE.—This was not offered on the

(Testimony of C. A. Luckenbach.)

lamp-black side of the case. This is material because it is from the Western Gas Construction Company, and refers to the manner in which the test shall be applied to this apparatus. When the supplemental contract was made, no new tests were prescribed. It still had to have a certain make of gas for a certain quantity of fuel, and the same kind of fuel, the same kind of oil; and what was a test [174] under the first contract would be a test under the second. We will have to establish when we make our case, in what way we measured the gas, for example, in what way we weighed the carbon, and what way we measured the oil, if you please, and they will say that is the wrong way. But we have confessions and admissions on their part of what was the right way to apply those tests.

The COURT.—Read it and let me see what it is.

(Mr. GOUDGE reads said letter.)

(Discussion.)

Mr. CHAPMAN.—We would like to add to our objection that the recital of the conditions as they existed at that particular test is no evidence as to the conditions later.

The COURT.—If there are no conditions described in the second contract, isn't the fair presumption that the same test under the supplementary contract would be made as was in the original contract, except so far as they have been modified by the supplemental contract?

Mr. CHAPMAN.—We think also that there is no evidence that any declaration Mr. Pederson could

(Testimony of C. A. Luckenbach.)

have made as to his understanding of what the contract was, governed the corporation. At any rate, there is no showing that he had authority to bind the company. He was a mere operating agent.

The COURT.—The objection is overruled. It is introduced solely for the purpose that I have intimated, and not for the purpose of showing any compliance by you with the conditions of the other contract. That would be wholly immaterial in this case.

(Letter introduced into and read in evidence and marked Plaintiff's Exhibit No. 8, and is as follows: [175]

Plaintiff's Exhibit No. 8.

HOTEL HAYWARD,
Spring and Sixth Sts.,
Los Angeles.

Los Angeles Gas and Electric Company,
Los Angeles, California.

Gentlemen:—

Complying with your request that we make definite statement as to conditions obtaining at your gas-works, and our acceptance of these conditions as satisfactory in the making of a test of gas apparatus installed by us, we beg to make the following statement:

We have tested your water-gas station meter and it is, at the present time, correct, though we shall require the privilege of making tests from time to time if we deem it necessary.

The photometer is accurate and correct.

The apparatus and pipe-lines are so situated that they can be isolated, and while we cannot guarantee that this condition will remain, we feel satisfied that no one will interfere with their condition so as to divert the gas, and accept the condition as satisfactory. The same applies to the purifying and other piping around the works.

We have made tests of the 14 tons of carbon which you have set aside for our use, and find it contained less than 10 per cent moisture. We are making daily tests of such other carbon as you are supplying, and we shall notify you if any of it is above 10 per cent moisture.

We shall require in the operation water for the condenser, an amount sufficient to fill two 3-inch outlet pipes, or rather so much as two 3-inch outlet pipes will carry away under atmospheric pressure; ninety pounds of steam pressure will be sufficient at the operating floor; seventy pounds of oil will be required at the operating floor. [176] Provisions have been made for draining the water from the steam so that this will be furnished us in a satisfactory manner. Oil meters have been tested and found correct.

If any *any* time during the continuation of this test any operating condition is unsatisfactory, we shall at once verbally report this fact to your inspector in charge, and make note of such report on the operating reports. This report is signed by your inspector and our representative. Your own inspectors will presumably furnish you with written report of any complaints made, which will ac-

(Testimony of C. A. Luckenbach.)

quaint you with the fact that exception has been taken to some operating condition.

Trusting that this is satisfactory, we are

Yours truly,

THE WESTERN GAS CONSTRUCTION
COMPANY,

per B. S. PEDERSON, Agt. [177]

Mr. GOUDGE.—After that time, any test that was made of the plant was not deemed satisfactory. I think we can assume that as admitted in the case. That is true, is it not?

Mr. TRIPPET.—That is correct, yes.

Q. (By Mr. GOUDGE.) Coming now to the negotiations, if there were any, within your knowledge, which led up to the making of the supplemental contract,—you understand what I mean by the supplemental contract? I refer to the contract of July 12, 1909. You are familiar with that contract?

A. I am, yes, sir.

Q. State what, if any, negotiations you had knowledge of that took place between your company and The Western Gas Construction Company that led up to the making of that supplemental contract of July 12, 1909. With whom were they had, if with anyone?

A. I think the first steps leading up to that were begun approximately a year previous, or something in that neighborhood. Part of the negotiations were with Mr. Pederson and part of them direct with Fort Wayne. One if not two drafts of the supplemental contract were prepared by me and for-

(Testimony of C. A. Luckenbach.)

warded to Fort Wayne. I believe, if my recollection serves me correctly, the first one was forwarded to Fort Wayne to Mr. Pederson, and a form of supplemental contract was prepared by The Western Gas Construction Company and forwarded to Los Angeles for signature, but we could not agree upon the terms of it.

Q. Now, coming down to a time somewhere the time of the actual execution of the supplemental contract of July 12, 1909, what, if any, negotiations took place that you had knowledge of, and between whom?

A. I think at that time the negotiations were between Mr. Pederson and Mr. Trippet on the side of The Western Gas Construction Company, and Mr. Edwards and myself for the Los Angeles [178] Gas and Electric Corporation.

Q. By Mr. Trippet you mean one of the counsel for defendant? A. Yes, sir.

Q. And Mr. Edwards, my associate, one of counsel for plaintiff? A. Yes, sir.

Q. In those negotiations at which you were present, state if any references were made to the fuel that was to be used by the apparatus.

A. Yes, sir—

Mr. CHAPMAN.—Wait a minute, Mr. Luckenbach—all right.

A. Yes, sir; there was considerable discussion and talk about the fuel, among other conditions.

Q. State what was said and who was present at the time of the discussion of that subject, prior to

(Testimony of C. A. Luckenbach.)

and looking to the execution of this supplemental contract of July 12, 1909. By "that subject" I refer to the question of lamp-black. If that subject was referred to in the negotiations.

A. I have in mind one conference that took place in the office of Mr. Trippet in the Coulter Building, at which time Mr. Trippet, Mr. Pederson, Mr. Edwards and myself were present, and the general conditions surrounding the contract were discussed and the question of fuel, how it was to be handled, and the way it had been handled in the past, was generally discussed, with reference to the new contract. I couldn't be exact as to the date, but it was about a week previous to the execution of this contract of July 12—this supplemental contract.

Q. You say that at that conference the manner of handling the carbon was discussed?

A. Yes, sir; the conference was a general rehash of the claims of both sides. [179]

Q. Was the fuel that had been furnished mentioned or spoken of? A. Yes, sir.

Q. What was it called, if you remember? What did you speak of it as? A. As lamp-black.

Q. State, as far as you can state and as far as you can remember, what, if any, objections as to the character of the fuel that had been or was proposed to be furnished, were made by Mr. Pederson or Mr. Trippet, who were representing the Gas Construction Company, if any objections were made.

A. The only objection that I recall at the present time was with reference to the water—the quantity

(Testimony of C. A. Luckenbach.)

of water in the fuel at that time, and—yes, I think that was the only objection.

Q. (By the COURT.) What was the character of that lamp-black—its appearance as it issues as a by-product from the manufacture of gas from oil? A kind of soot, do you say?

A. It is a black, flaky substance in suspension in water as it comes from the wash-box.

Q. What is the wash-box?

A. The wash-box is a box in the oil gas set filled with water, to which the gas passes from the generator. It comes through from the generation of the gas.

Q. And is dropped where?

A. In the wash-box or seal of the oil-gas set.

Q. The mechanism is so arranged as to separate the lamp-black from the gas?

A. The lamp-black remains in suspension, or a very large part of it, in the water.

Q. And the gas passes over the water?

A. Yes, it bubbles up through the water.

Q. And this lamp-black is left on the surface of the water? [180]

A. Yes, sir; in the water, and the overflow from the wash-box carries it off into a receptacle, and from there it goes off into a big flume and into the settling pits.

Q. Where it dries out the water, as far as it can, or as far as you desire?

A. Yes, sir, as far as we can.

Q. What state do you find it in after the water

(Testimony of C. A. Luckenbach.)

has been separated from it?

A. As it leaves this receptacle it is in suspension in the water. Possibly two per cent of the solution is carbon in suspension. When it has been in the pits a period of a week, there is about sixty per cent of the moisture in the solution driven off.

Q. How is the moisture driven from the solution? By pressure?

A. No, sir; the surplus water is taken away by—it is taken away by the difference in specific gravity of the two. The clear water runs over and runs off and leaves the carbon with a certain amount of moisture still in it.

Q. And there is no mechanical means adopted to still further exclude the water?

A. We have a means now of doing that, but we hadn't at that time.

Q. What means have you now?

A. We have a separator known as an Oliver separator, by which we draw the water off by suction—a great percentage of the water. That draws the carbon to a wheel covered by canvas, and as it revolves, when the wheel leaves the water—the body of the water—there is a suction drawing the moisture out till it gets pretty well over the center, when the carbon is scraped off of this wheel.

Q. (By Mr. GOUDGE.) At the time covered by this contract, [181] the carbon or lamp-black was settled in pits? A. Yes, sir.

Q. Was it left there to dry?

A. It was left there till a certain percentage of

(Testimony of C. A. Luckenbach.)

the moisture was withdrawn.

Q. Is that the pit you refer to, or the condition of the carbon or lamp-black referred to in one of the letters, where you say you would take that in lumps and put it in the generators?

A. We would take it out of the pits and put it in the generators, or put it onto a big pile where it is allowed to sun-dry; and at times it has been treated to exhaust the moisture so that it got dry enough to harden into lumps.

Q. You have described the manner in which the carbon or lamp-black is separated from the water through which the gas is washed, and that it dries and partially, at least, solidifies. In some of the correspondence already introduced in evidence, reference is made to bricks. Will you explain what that means, or whether anything was done to this lamp-black or carbon during the times covered by this contract, to put it in any other shape than this crude shape of drying in pits or piles that you have already discussed?

A. Yes, sir. The carbon, or a great amount of the carbon, was dried through a drier and made into briquets or bricks, and some of the carbon as it came from the piles was made into bricks.

Q. In what manner would it be made into bricks?

A. We used a regular standard brick machine for the manufacture of bricks, and the carbon was put into the hopper of the machine and it fell into the moulds, and the dies pressed it into a brick form.

Q. Was there cement used in making the bricks?

(Testimony of C. A. Luckenbach.)

A. No, sir; none except what was inherent in the carbon itself. [182]

Q. And the bricks were made by pressure simply?

A. By pressure, yes, sir.

Q. I call your attention to this document and ask you to say what it is.

A. It is a letter addressed to myself by Mr. Pederson for The Western Gas Construction Company, dated July 30, 1909.

Q. And received by you at about that time?

A. Received by me then, yes.

Mr. GOUDGE.—We offer this in evidence if the Court please.

Mr. TRIPPET.—Go ahead and introduce it.

(Said letter was introduced into and read in evidence, marked Plaintiff's Exhibit No. 9, and is as follows:) [183]

Plaintiff's Exhibit No. 9.

HOTEL HAYWARD,

Spring and Sixth Sts.,

Los Angeles.

Los Angeles, Cal., July 30, '09.

Mr. C. A. Luckenbach,

Los Angeles, California.

Dear Sir:—

In reply to your letter will state that we expect to be able to determine what changes will be necessary by the end of next week, or August 7, '09.

We shall require in the neighborhood of 3000 tons of carbon fuel for our run and tests, and the total time required about four months, providing no un-

(Testimony of C. A. Luckenbach.)

forseen complications arise.

The time of reconstruction lies largely with the local boiler works, and until this work is determined it is merely a case as to the time required for that work. As soon as possible we shall give you more definite information on this subject.

Very truly yours,

THE WESTERN GAS CONSTRUCTION
COMPANY,

B. S. PEDERSON, Agt. [184]

Q. (By Mr. GOUDGE.) Can you identify this document and state what it is?

A. This is a letter addressed by me to the Western Gas Construction Company, under date August 23, 1909, and mailed by me.

Q. This is a carbon copy of the letter?

A. Yes, sir.

Mr. GOUDGE.—No objection on account of its being a copy, I understand?

Mr. CHAPMAN.—No.

Mr. GOUDGE.—We offer this in evidence.

(Letter read in evidence and marked Plaintiff's Exhibit No. 10, and is as follows:) [185]

Plaintiff's Exhibit No. 10.

August 23, 1909.

19-w

The Western Gas Construction Co.,

B. S. Pederson, Agent,

589 Howard Street, San Francisco, Cal.

Gentlemen:—

Upon my return from my vacation, I find that you

(Testimony of C. A. Luckenbach.)

completed the preliminary test of the water-gas set on the morning of August 14th, 1909, and that you advised our superintendent that it would be in the neighborhood of four months before you would make another test. I have no word from you in reference to this matter. Will you please advise me in writing at the earliest possible moment as to your probable future action in this matter, and the time which you estimate will be necessary for the various steps you propose taking.

Yours respectfully,

LOS ANGELES GAS AND ELECTRIC
CORPORATION,

By C. A. LUCKENBACH,

Manager of Construction.

c. c. P. A. [186]

Q. (By Mr. GOUDGE.) State what that document is, if you know.

A. This is a letter from Mr. Pederson addressed to myself, under date August 27, 1909, received and filed by me.

Mr. GOUDGE.—We offer this in evidence.

(Letter dated San Francisco, California, August 27, 1909, read in evidence and marked Plaintiff's Exhibit No. 11, and is as follows:) [187]

Plaintiff's Exhibit No. 11.

THE WESTERN GAS CONSTRUCTION COMPANY,
Gas Engineers.

Fort Wayne, Indiana.

San Francisco, Cal., August 27, 1909.

Mr. C. A. Luckenbach, Manager of Construction,
Los Angeles Gas and Electric Corporation,
Los Angeles, Cal.

Dear Sir:—

Your letter of the 23d received. Will state that we have received figures on the reconstruction of the work and the entire matter has been forwarded to Fort Wayne, where working plans are being prepared. As soon as the plans are ready, they will be forwarded to Los Angeles, and the work contracted for on a basis of immediate commencement. I wrote you some time prior to the finish of the preliminary test, giving you estimate of time which I thought necessary to complete the work. It will take some little time to get the castings from Fort Wayne, and to do the necessary brick work after the changes have been made in the generator shell so that the estimate of four months, I would state, is about as near as we can approximate at this time. We hope, of course, to be finished at an earlier period, but would not care to definitely state at what time we can finish, as so many contingencies arise

(Testimony of C. A. Luckenbach.)

that might interfere with the delivery of the work within that time.

Very truly yours,

THE WESTERN GAS CONSTRUCTION
COMPANY.

Per B. S. PEDERSON.

BSP#H [188]

Q. What is this document that I hand you?

A. This is a letter from Mr. Pederson addressed to Mr. F. G. Millard, who was at that time superintendent of gas manufacture, under date August 20, 1909, and by him delivered to me.

Q. When you say "superintendent of gas manufacture," of what company?

A. Of the Los Angeles Gas and Electric Company.

Mr. GOUDGE.—We offer this in evidence.

(Letter read in evidence and marked Plaintiff's Exhibit No. 12, and is as follows:) [189]

Plaintiff's Exhibit No. 12.

THE WESTERN GAS CONSTRUCTION COMPANY,

Gas Engineers.

Fort Wayne, Indiana.

San Francisco, Cal., August 20, 1909.

Mr. F. C. Millard, Supt.,

Los Angeles Gas and Electric Company,
Los Angeles, California.

Dear Sir:—

Your letter of the 18th instant received, and I am afraid it came too late for my reply to reach you

(Testimony of C. A. Luckenbach.)

before you started on your vacation, my understanding being that you were to start on the 20th.

I finished the preliminary test on the apparatus last Saturday, and notified the Fort Wayne office to that effect. Up to the present time, I have received no word from them, and presume, therefore, that my work was satisfactory, and that we will proceed immediately with the reconstruction of the water gas generator. The Baker Iron Works disappointed us in the matter of putting in a bid, as I today received a letter from them stating that they were unable to handle this work for us. I have been expecting to receive official bids from Darby and Ward, confirming their verbal bid on the work, when we shall give them orders to proceed, and we expect to be ready to start up within 90 or 100 days from the time the reconstruction is begun.

Yours very truly,

THE WESTERN GAS CONSTRUCTION
COMPANY.

Per B. S. PEDERSON. [190]

Q. (By Mr. GOUDGE.) I call your attention to some pencil writing at the bottom left-hand corner. Was that part of the letter?

A. No, sir. It is an endorsement made there in my own handwriting.

Mr. GOUDGE.—We do not desire to have that included in the offer.

Q. I ask you to identify, if you can, this document, and state what it is.

A. A letter under date September 8, 1909, ad-

(Testimony of C. A. Luckenbach.)

dressed to myself by Mr. Guldlin of The Western Gas Construction Company.

Mr. GOUDGE.—I offer this letter in evidence.

(Letter read in evidence and marked Plaintiff's Exhibit No. 13, and is as follows:) [191]

Plaintiff's Exhibit No. 13.

THE WESTERN GAS CONSTRUCTION COMPANY,
Gas Engineers,
Fort Wayne, Indiana.

September 18, 1909.

C. A. Luckenbach, Manager of Construction,
Los Angeles Gas and Electric Company,
Los Angeles, California.

Dear Sir:—

Your letter of the 13th just received, and I have wired you as per enclosed confirmation, that you may know everything is being rushed from this end, consistent with safety of construction.

We find it necessary to prepare several detail drawings for the reconstruction of this generator, as we wanted everything incorporated that would make the plant a first-class one, and inasmuch as the reconstruction of the shell work will be done by the Western Boiler Works, we do not want to take any chances of our idea being misunderstood, or that anything might be omitted, which in our judgment is required for first-class shop work. Acceptance of the proposition was forwarded direct to the Western Boiler Works, on the 13th, and detail drawings

were forwarded to Mr. Pederson on the 14th, with instructions that he, after having examined same, would immediately forward to the Western Boiler Works, with instructions to go ahead without delay.

The castings required are being made in our works, and we expect to be able to give you shipping date the early part of next week, which will cover not only the special castings but also the new reverse valve. All these details should reach the Western Boiler Works in ample time for their progress with the work. We also found it necessary to make some special moulds for the tiles to fit the generator construction. These have also been designed and orders placed with [192] the Fire Brick Company in St. Louis, and will be on the ground when required.

In conclusion, we can assure you that everything will be done to now rush the work on the design, the details of which necessarily take time to complete. The last experimental operation under Mr. Pederson's direct supervision was of the utmost importance to us, definitely settling several features of which we were not entirely satisfied before, as to general results. It has been a long drawn out battle, but in conclusion assure you that I am now more than ever convinced of ultimate success, and I am extremely anxious that this shall be reached with the

206 *Los Angeles Gas and Electric Corporation*
(Testimony of C. A. Luckenbach.)
least possible delay.

With kindest personal regards, I remain,
Yours very truly,

O. N. GULDLIN,
President.

Encl.

c-p

S

[193]

Q. (By Mr. GOUDGE.) Will you state what this document is, if you know.

A. It is a communication dated December 13, 1909, addressed to the Los Angeles Gas and Electric Corporation by E. C. White, representative of the Western Gas Construction Company, and was delivered during my absence to—I have been told—to Mr. Vance. It was given to me upon my return to the office by Mr. Vance.

Mr. GOUDGE.—I suppose it will be conceded that this letter was signed by Mr. E. C. White?

Mr. TRIPPET.—Yes.

Mr. GOUDGE.—And further, will you stipulate who Mr. E. C. White was?

Mr. CHAPMAN.—Yes, sir; he was one of the operators in charge of the apparatus during the preliminary tests, and also during the final test.

Mr. GOUDGE.—I offer this letter in evidence, and I will read it.

(Letter read in evidence and the same is marked Plaintiff's Exhibit No. 14, and is as follows:) [194]

Plaintiff's Exhibit No. 14.

Los Angeles, Cal., December 13, 1909.

Los Angeles Gas and Electric Corporation,
645 So. Hill Street,
City.

Gentlemen:—

We would prefer, if agreeable to you, that you furnish us the fuel bricks for the new machine which we have installed, containing say from 16 per cent to 25 per cent moisture, instead of 10 per cent, as formerly, similar to the fuel bricks you are now using in your machine.

Yours very truly,

THE WESTERN GAS CONSTRUCTION
COMPANY.

By F. C. WHITE. [195]

Q. (By Mr. GOUDGE.) What is this document?

A. This is a letter addressed to me by Mr. Pederson under date December 28, 1909, and received by me.

Mr. GOUDGE.—We offer this letter in evidence.

(Letter read in evidence and the same is marked Plaintiff's Exhibit No. 15, and is as follows:) [196]

Plaintiff's Exhibit No. 15.

Los Angeles, Cal., December 28th, 1909.

Mr. C. A. Luckenbach, Manager of Construction,
Los Angeles Gas and Electric Corporation,
Los Angeles, Cal.

Dear Sir:—

In confirmation of our conversation this morning, I beg to state that we desire to withdraw our letter of December 13th in reference to fuel to be used during

(Testimony of C. A. Luckenbach.)

the test of the water-gas apparatus now being installed by us. The fuel that you have on hand at present will be satisfactory, but we feel that it must be protected from additional moisture, and would ask that you protect the fuel that you have ready for us from rain and other moisture that may be precipitated upon it.

Yours respectfully,

THE WESTERN GAS CONSTRUCTION
COMPANY.

By B. S. PEDERSON, Agt. [197]

Q. (By Mr. GOUDGE.) This letter says, Mr. Pederson speaking, "In confirmation of our conversation this morning, I beg to say that we desire to withdraw our letter." Do you recall any conversation with him?

A. We had a conversation that morning with reference to the moisture in the bricks.

Q. Where did it occur?

A. I won't be absolutely positive, but to the best of my recollection it was at my office.

Q. And who, if anyone else, was present?

A. I don't recall that anyone else was present.

Q. What was said about the fuel or subject-matter of this letter?

A. Practically the same as stated in this letter. Mr. Pederson didn't want the fuel with as much moisture in as Mr. White had wanted, and that the fuel down there was satisfactory, but that he desired to have it protected from any further moisture or absorption.

(Testimony of C. A. Luckenbach.)

Q. What, if anything, did you do with reference to that request to protect the fuel that you had on hand from rain or other moisture?

A. I gave instructions immediately to have it fully covered with tarpaulin, galvanized iron, or other material that might be necessary to keep it from exposure to rain.

Q. You say you gave instructions to have that done. Was it done? A. It was.

Q. I ask you to state what that document is.

A. It is a letter addressed to the Los Angeles Gas and Electric Corporation by Mr. E. C. White of The Western Gas Construction Company, February 28, 1910, and delivered to me.

Q. What is this other document? [198]

A. A letter dated February 28th, 1910, from Mr. White of The Western Gas Construction Company, addressed to the Los Angeles Gas and Electric Corporation, and delivered to me.

Mr. GOUDGE.—We offer these two letters as one exhibit, both bearing the same date, and both signed by E. C. White.

(Reads said two letters in evidence. Said letters are marked Plaintiff's Exhibit 16, and are as follows:) [199]

Plaintiff's Exhibit No. 16-A.

Los Angeles, Cal., February 28, 1910.
Los Angeles Gas and Electric Corporation,
Los Angeles,
California.

Gentlemen:—

Attention Mr. Luckenbach.

Further, in reference to your letter of February 25th and mine of even date herewith:

We hereby notify you that we will, on the morning of March 10th, 1910, at 6 o'clock A. M., begin the final twenty-day test of the water-gas set now at your plant, as provided for in the contract between your company and the Western Gas Construction Company, dated July 12th, 1909. Between this date and the morning of March 10th, 1910, we will not require carbon of any specific amount of moisture, but in operating the set will use the ordinary run of brick.

Yours respectfully,

E. C. WHITE,

For Western Gas Construction Company. [200]

Plaintiff's Exhibit No. 16-B.

Los Angeles, Cal., February 28, 1910.
Los Angeles Gas and Electric Corporation,
Los Angeles, California.

Dear Sirs:—

Attention Mr. Luckenbach.

Further in reference to your letter to me of February 25th, I would beg to state that the chief engineer at the gas works raised the speed of the engine this morning, and increased the pressure to a satisfactory

(Testimony of C. A. Luckenbach.)

degree. It was my intention to go on with the test tomorrow morning, but we find that the carburetter has a coating over the top of it which it is essential to remove in order to get efficiency. Since perforating the back of the shoots, we get a large amount of fine stuff out before it reaches the mouth piece of the generator. This condition has materially increased the efficiency of the fire, and for the two days operating since perforating the shoots the fire has built up.

Our company is desirous of having Mr. Pederson here during the test, but unfortunately he is north. He will be back on the 8th, and I ask you to give us until the 10th of March to start the test, promising you that we will positively start on that date, and that if Mr. Pederson returns earlier we will start before that date. Can notify him at once.

I trust that you will grant us this favor, and awaiting your reply, I am

Yours very truly,

E. C. WHITE,

For Western Gas Construction Co. [201]

Mr. CHAPMAN.—We don't seem to have the original of that other letter referred to, in court. And if you intend to introduce it, you might use a copy.

Mr. GOUDGE.—In deference to counsel's desire, we will introduce this letter.

Q. (By Mr. GOUDGE.) Will you state what that document is?

A. It is a letter dated February 25th, 1910, addressed by myself to Mr. White as representative of The Western Gas Construction Company and deliv-

(Testimony of C. A. Luckenbach.)

ered to him. It is a copy of the original.

Mr. GOUDGE.—No objection is made to it on the ground that it is a copy?

Mr. CHAPMAN.—No, sir.

Mr. GOUDGE.—We offer this in evidence.

(Mr. Goudge reads said letter in evidence and the same is marked Plaintiff's Exhibit No. 17, and is as follows:) [202]

Plaintiff's Exhibit No. 17.

February 25, 1910.

19-w

Mr. E. C. White,

Representative of Western Gas Construction
Co., City.

Dear Sir:—

On the 24th day of January, 1910, you informed us that you would commence the final test of your water-gas apparatus the next day. Owing to the injury to our blast line, and the accident to your apparatus, the commencement of the test was delayed several days while you made the necessary repairs and again put the apparatus in condition for the continuation of the test. Since getting your apparatus in condition for the test, we do not feel that you have pushed the test with the reasonable expedition required by the contract. We therefore insist that you continue the rinal test of the apparatus on March 1st, 1910 and prosecute the same with all reasonable diligence and strictly in accordance with the contract. In the operation of your machine, at all times it must be understood that we will hold the Western Gas Con-

(Testimony of C. A. Luckenbach.)

struction Company strictly responsible for any and all damage to our property which may be caused through any explosion of or accident to your apparatus.

Yours respectfully,
LOS ANGELES GAS AND ELECTRIC
CORPORATION.

By C. A. LUCKENBACH,
Manager of Construction.

Approved as to form:

L. M. EDWARDS,
Asst. General Counsel. [203]

Q. Can you state what this document is?

A. This is under date of February 28th, 1910, addressed by me to The Western Gas Construction Company, Mr. White, Agent, and delivered to him. This is a copy.

Mr. GOUDGE.—We offer this in evidence on the understanding that there is no objection on the ground that it is a copy.

(Said letter is read in evidence and is marked Plaintiff's Exhibit No. 18, and is as follows:) [204]

Plaintiff's Exhibit No. 18.

February 28th, 1910.

19-w

Western Gas Construction Company,

E. C. White, Agent,
City.

Dear Sir:—

Referring to your communication of February 25th, and also to your several communications of the

(Testimony of C. A. Luckenbach.)

28th instant, I take leave to advise you that owing to your positive statement and your notification that you will on the morning of March 10th, 1910, at 6 o'clock A. M. begin the final 20-day test of your water-gas set now at our plant, as provided for in the contract between this company and the Western Gas Construction Company, dated July 12th, 1909, we withdraw our demand that such test shall begin on the morning of March 1st, 1910, at 6 o'clock A. M., but not at any later date than March 10th, 1910.

Yours respectfully,

LOS ANGELES GAS AND ELECTRIC
CORPORATION.

By C. A. LUCKENBACH,
Manager of Construction.

Approved as to form:

WM. A. CHENEY,
General Counsel. [205]

Q. (By Mr. GOUDGE.) When and on what date did The Western Gas Construction Company cease operating the set subsequent to March 10, 1910?

A. At six o'clock on the morning of March 30, 1910.

Q. Then, the test began at six o'clock in the morning of March 10 and the operations ceased at 6 o'clock in the morning of March 30, is that right?

A. Yes, sir.

Q. Subsequent to six o'clock in the morning of March 30, was that set operated at any time?

A. No, sir.

Q. Was the result or performance by and under this test or the operation of this set during the period

(Testimony of C. A. Luckenbach.)

from March 10 to March 30, 1910, satisfactory to your company?

Mr. TRIPPET.—We object to that as immaterial, whether it was satisfactory or not.

The COURT.—The objection is sustained.

Plaintiff excepted to the ruling of the Court.

(Q. (By Mr. GOUDGE.) I call your attention to this document and ask you to state what it is, if you know.

A. It is a letter dated April 5th, 1910, and addressed to The Western Gas Construction Company—a copy of a letter from me to The Western Gas Construction Company—under date April 5, 1910.

Q. Written by you and mailed to them?

A. Written and signed by me and mailed to them.

Mr. GOUDGE.—Any objection to this?

Mr. CHAPMAN.—No.

(Mr. Goudge reads said letter in evidence and the same is marked Plaintiff's Exhibit No. 19, and is as follows:) [206]

Plaintiff's Exhibit No. 19.

April 5th, 1910.

Western Gas Construction Company,
Fort Wayne, Indiana.

Gentlemen:—

Under our contract of July 12th, 1909, with you, it was agreed that if you did not bring your water-gas apparatus installed at our plant up to the contract requirements set forth in section three thereof, that you would immediately return to us the money heretofore advanced to you by us on this set, to wit, \$26,-

823.45, and that you would remove your apparatus at once from our premises without cost to us.

From March 10th to March 30th, 1910, you performed your final test of your apparatus as provided in the aforesaid contract, and now that said test is completed and you have failed to bring your apparatus up to the contract requirements therein stated, we ask that you perform your part under section three of said contract by returning the sum of \$26,823.45 to us, and remove your apparatus from our premises at once, and without cost to us.

You have had every opportunity to bring your apparatus up to the contract requirements and we do not think that anything could be gained by commencing another test as suggested in your letter of April 2, 1910, as it would be but a repetition of futile attempts.

Further as a result of the test which you have made, your apparatus, with which you made the test, is in a dilapidated and unfit condition.

Yours respectfully,

LOS ANGELES GAS AND ELECTRIC
CORPORATION.

By C. A. LUCKENBACH,
Manager of Construction.

Attention:

Mr. WHITE,
Representative.

Mr. PEDERSON,
Pacific Coast Representative.

Approved as to form:

L. M. EDWARDS,
Asst. General Counsel. [207]

(Testimony of C. A. Luckenbach.)

Q. (By Mr. GOUDGE.) I ask you to identify this document.

A. This is a letter addressed to The Western Gas Construction Company under date April 8th—it is a copy of a letter addressed to The Western Gas Construction Company under date April 8th, 1910, signed by myself as manager of Construction and R. M. Adams, Secretary.

Mr. GOUDGE.—We offer this copy of the letter in evidence on the understanding that no objection is made on account of its being a copy.

(Said letter is read in evidence and the same is marked Plaintiff's Exhibit No. 20, and is as follows:) [208]

Plaintiff's Exhibit No. 20.

April 8th, 1910.

19-w

The Western Gas Construction Company,
Fort Wayne, Indiana.

Gentlemen:—

Under and by virtue of our contract with you, dated July 12th, 1909, which you have failed to perform, we herewith demand that you immediately return to us the sum of \$26,823.45, and that you at once remove your water-gas apparatus from our premises at your own cost and expense.

(Testimony of C. A. Luckenbach.)

We hereby further notify you that we will not be responsible for any damage or injury which may happen to our apparatus from henceforth.

Yours respectfully,

LOS ANGELES GAS AND ELECTRIC
CORPORATION.

By C. A. LUCKENBACH,

Manager of Construction.

By R. M. ADAMS,

Secretary.

Mr. E. C. WHITE, Representative.

Mr. B. S. PEDERSON,

Pacific Coast Representative.

Approved as to form:

L. M. EDWARDS,

Asst. General Counsel. [209]

Q. State what this document is.

A. It is a letter addressed to the Los Angeles Gas and Electric Corporation, my attention, from E. C. White, received by me April 9, 1910.

Mr. GOUDGE.—I offer that in evidence.

(Mr. Goudge reads said letter in evidence and the same is marked Plaintiff's Exhibit No. 21, and is as follows:) [210]

Plaintiff's Exhibit No. 21.

Los, Angeles, Cal., April 9th, 1910.

Los Angeles Gas and Electric Corporation,

Los Angeles, Cal.

Gentlemen:—

Attention Mr. C. A. Luckenbach.

I have your letter of April 8th, demanding

(Testimony of C. A. Luckenbach.)

immediate return of \$26,823.45, and that we at once remove water-gas apparatus. I note at the bottom of letter you instructed copy to be sent to B. S. Pederson, Coast Representative, but made no mention of a copy to our home office, Fort Wayne, consequently I am sending them your letter and keeping a copy for my files. You will hear from them in due time.

Yours truly,

E. C. WHITE.

Received April 9th, 1910.

C. A. LUCKENBACH,

Manager of Construction. [211]

Q. (By Mr. GOUDGE.) State what this document is.

A. It is a letter under date April 13, 1910, from The Western Gas Construction Company, addressed to the Los Angeles Gas and Electric Corporation, and received by me on April 18, 1910.

Mr. GOUDGE.—We offer this letter in evidence.

(Mr. Goudge reads said letter in evidence and the same is marked Plaintiff's Exhibit No. 22, and is as follows:) [212]

Plaintiff's Exhibit No. 22.

THE WESTERN GAS CONSTRUCTION COMPANY,
Gas Engineers.
Fort Wayne, Indiana.

April 13th, 1910.

Los Angeles Gas and Electric Corporation,
Los Angeles,
California.

Gentlemen:—

Attention Mr. C. A. Luckenbach, Mgr. Con.

We are in receipt of your communication of April 5 and April 8, respectively, both on the subject of our contract with you, dated July 12th, 1909, and this letter is written to acknowledge such receipt.

Owing to the absence from this city of Mr. O. N. Guldlin, President of this company, it will be impossible to make a definite reply to your letters mentioned above, but upon his return the early part of next week these letters will be brought to his attention and you will undoubtedly receive a further communication from him.

Yours very truly,

THE WESTERN GAS CONSTRUCTION
COMPANY.

O. O. TWING,
Chief Engineer.

Received April 18, 1910.

C. A. LUCKENBACH,

Manager of Construction. [213]

Q. (By Mr. GOUDGE.) State what this is.

(Testimony of C. A. Luckenbach.)

A. This is a communication from the Western Gas Construction Company under date May 10, 1910, addressed to the Los Angeles Gas and Electric Corporation and received by me on May 17, 1910.

Mr. GOUDGE.—We offer this letter in evidence.

(Said letter is read in evidence by Mr. Goudge and the same is marked Plaintiff's Exhibit No. 23, and is as follows:) [214]

Plaintiff's Exhibit No. 23.

THE WESTERN GAS CONSTRUCTION COMPANY,

Gas Engineers.

Fort Wayne, Indiana.

May 10th, 1910.

Los Angeles Gas and Electric Corporation,

Los Angeles, Cal.

Gentlemen:—

Replying to your No. 19 April 8th; also yours of April 5th, to the Western Gas Construction Company.

With the daily operating reports of the test, and further explanations of the conditions presented during such test, now finally and fully confirmed by our Mr. Pederson and Mr. White, you are hereby informed by the Western Gas Construction Company that the said Western Gas Construction Company claim and maintain that they have fully performed the contract of July 12, 1909, and the apparatus constructed by virtue of said contract has fully performed the guarantees therein contained; and that

(Testimony of C. A. Luckenbach.)

your company committed various breaches of said contract at various times, repeatedly called to your attention from time to time. Said Western Gas Construction Company will note return the money mentioned in your contract, but do claim that the sum of \$8870.55 is due by virtue of the performance of said contract, in addition to the \$26,823.45 previously received under the contract. That said Western Gas Construction Company will not remove said apparatus and maintain that the same belongs to you.

Yours very truly,

WESTERN GAS CONSTRUCTION COMPANY.
O. N. GULDLIN, President. [215]

Q. (By Mr. GOUDGE.) Now, during the period from March 10 to March 30, what, if any, complaints were made by any representative of The Western Gas Construction Company to your company as far as you know, concerning breaches of the contract or alleged breaches of the contract committed by the Los Angeles Gas and Electric Company or the Los Angeles Gas and Electric Corporation?

A. I recall two at the present time. One was—I was trying to recall the dates, but I cannot do it without referring to my correspondence. They were both in reference to carbon or lamp-black.

Q. Do you mean that they were in writing?

A. I believe that one was in writing. I won't say positively that both were.

Q. (By the COURT.) What other name did you give to that substance? A. Lamp-black or carbon.

Q. (By Mr. GOUDGE.) You say one was in

(Testimony of C. A. Luckenbach.)

writing? A. That is my recollection.

Q. Was there any other complaint other than the one in writing? A. I believe there was, yes.

Q. What was that, who made it and when?

A. They were both from Mr. White. I cannot tell the exact dates. I have memorandum in my file which would give me the exact dates and circumstances.

Q. Are those filed here? A. They are, yes.

Q. I call your attention to this document.

A. This is one of the letters, dated March 18, 1910, by The Western Gas Construction Company, Mr. White, agent.

Q. It is one of the two complaints that you referred to? [216] A. It is, yes, sir.

Mr. GOUDGE.—We offer this letter in evidence.

Mr. CHAPMAN.—No objection.

(Mr. Goudge reads said letter in evidence and the same is marked Plaintiff's Exhibit No. 24, and is as follows:) [217]

Plaintiff's Exhibit No. 24.

Los Angeles, Cal., March 18, 1910.

L. A. Gas and Electric Corporation,

Los Angeles, Cal.

Dear Sirs:—

Attention Mr. Luckenbach.

We must protest at the character of fuel which you delivered to us yesterday, and which is being hauled this morning. The bricks crumble and break all to pieces in going down the *shoot*, —to confirm this statement you will only have to look at the report

for fine carbon returned or credited to us yesterday. Ordinarily after each charge there were about three wheel-barrow loads of fine stuff on the floor which had dropped from the *shoots*. Yesterday there were from 8 to 11 wheel-barrow loads after each charging. It is evident that the process which you use in drying out these bricks has had a tendency to disintegrate them. Previously, although they were dry, as analysis showed, they held together as well as any of the bricks containing a larger percentage of moisture. But these kiln-dried bricks have not enough tensile strength to keep them from going to pieces, and powdering up. We demonstrated by the first two days operation that the machine could make from 2,400,000 to 2,700,000 feet per diem; and if the carbon would hold together as well as the carbon used at that time we could undoubtedly do better than we did on the days we made between 2,400,000 and 2,700,000, but it is unreasonable to suppose that we can operate the machine on fuel containing such a large percentage of fine carbon, which is not only worthless but a detriment. It looks bright enough from the top charging floor but as soon as the steam strikes it it kills is. Just as well pour in so much sand and expect to make gas. [218]

We made yesterday only 2,166,000 feet. If the carbon continues to be no better than it was yesterday and this morning, I doubt very much if we can even make 2,000,000 feet today and the following days.

If you can give us a grade of fuel similar to what we have previously had, we can undoubtedly work

(Testimony of C. A. Luckenbach.)

the fine stuff out and build up the fire again, but if the carbon continues to be as bad as above stated we cannot expect to obtain efficiency.

We have rechecked the carburetter, and are now positive that it is none other than the dirty fuel which gave us the poor results obtained yesterday.

Yours very truly,

WESTERN GAS CONSTRUCTION COMPANY.

By E. C. WHITE. [219]

Q. (By Mr. GOUDGE.) I show you this document and ask you to state what it is.

A. That is a letter addressed to me by Mr. White —a copy of a letter addressed to me by the Western Gas Construction Company, Mr. White, representative, on the 18th of March, 1910.

Mr. GOUDGE.—We offer this copy of a letter in evidence, there being no objection on the ground that it is a copy and not the original.

(Mr. Goudge reads said letter in evidence and the same is marked Plaintiff's Exhibit No. 25, and is as follows:) [220]

Plaintiff's Exhibit No. 25.

March 18, 1910.

19-w

Western Gas Construction Company,

Mr. E. C. White, Representative,
City.

Dear Sir:—

Acknowledging receipt of yours of the 18th instant, we beg leave to reply that we are furnishing you lamp

black fuel containing not more than 10 per cent moisture, and the said fuel we are furnishing you is in every respect strictly in accordance with the terms and conditions of our contract. You have in the past specifically demanded that the fuel furnished to you should comply strictly with the terms of the contract, and in order to comply with your request and to perform our contract in every detail, we have at a great expense and inconvenience to ourselves taken the precaution to see that every pound of lamp black delivered to you contains not more than ten per cent of moisture, and every pound of lamp black delivered to you in this test has been absolutely in accordance with the terms of our contract. Your request at this time that the lamp black furnished to you be furnished in the form of bricks which cannot be broken is unreasonable and not in accordance with our contract requirements. We call your attention to the contract which simply requires that the fuel furnished by us be "dry lamp black containing not more than 10 per cent moisture" and in no place does the contract require us to furnish you lamp black in the shape of bricks or in any concealed form whatsoever. At the times when we have furnished you lamp black in the form of bricks, it was because it happened to be convenient at that time to deliver the fuel in that form, but the contract does not require them to furnish the fuel in the form of bricks or in any given form, certainly does not require [221] us to furnish the fuel in the form of bricks of such unusual properties as you suggest. Such was never contracted for or contemplated between the parties.

(Testimony of C. A. Luckenbach.)

If your set will not make the quality and quantity of *gad* with the fuel economies provided for in the contract, such failure is certainly due to an inherent defect in the set itself and not in the quality of the fuel furnished you.

Yours respectfully,

LOS ANGELES GAS AND ELECTRIC
CORPORATION.

By C. A. LUCKENBACH,
Manager of Construction.

Approved as to form:

L. M. EDWARDS,

Asst. General Counsel. [222]

Q. (By Mr. GOUDGE.)—Will you state what that document is?

A. This is the second kick which I referred to as coming from Mr. White. It is a letter dated March 23d, 1910, addressed to the company, and signed by Mr. White, and received by me on the 23d of March, 1910, in the morning.

Mr. GOUDGE.—We offer this letter in evidence.

(Mr. Goudge reads said letter in evidence and the same is marked Plaintiff's Exhibit No. 26 and is as follows:) [223]

Plaintiff's Exhibit No. 26.

Los Angeles, Cal., March 23, 1910.

Los Angeles Gas and Electric Corporation,

Los Angeles, Cal.

Dear Sirs:—

Attention Mr. Luckenbach.

We are again forced to protest against the

character of briquettes you furnished us yesterday, and are providing us with today. The bricks are the worst for breaking up that we have ever had. I noticed this morning that they are still hot from the fires you built to dry them out. I call your attention to the fact that last night after two charges the men wheeled away from under the chutes seven and eight wheel-barrow loads, respectively; this morning twenty-three. After the first charge they wheeled away eight wheel-barrow loads,—about 300 pound each, and after the second charge, they wheeled out 12 wheel-barrow loads, or about 3600 pounds. A great deal of the fine stuff handled went into the fire, as the large bricks pushed it along over the screen—the carbon going in as rapidly as it does. The result of last night's make shows clearly the result of dirty fire. Have made 100,000 feet less last night than the machine made the twelve hours preceding yesterday, a total of 2,074,000 for the day as against 2,171,000 the day before, or on March 21. You can readily understand that it would not be considered possible for the machine to make gas advantageously where fuel of this character is being introduced. Might as well expect a water-gas set using coal to make gas and keep up the standard if breeze is substituted instead of coal.

I have your letter of the 18th, and note your remarks regarding the character of the carbon to be furnished, etc. Will not go into this matter, as I have not the data to [224] discuss the question. However, I have been under the impression that your company was to co-operate with us in every way to

(Testimony of C. A. Luckenbach.)

bring about the successful operation of this machine; but it would seem impossible if we were to meet the guarantee using the character of fuel furnished.

Yours very truly,

THE WESTERN GAS CONSTRUCTION
COMPANY.

By E. C. WHITE.

Received March 23, 1910.

C. A. LUCKENBACH,

Manager of Construction. [225]

Q. (By Mr. GOUDGE.) I ask you to state what that document is.

A. A copy of a letter addressed by me to The Western Gas Construction Company, under date March 23, 1910.

Mr. GOUDGE.—We offer it in evidence, there being no objection on the ground of its being a copy.

(Mr. Goudge reads said letter in evidence and the same is marked Plaintiff's Exhibit No. 27, and is as follows:) [226]

Plaintiff's Exhibit No. 27.

March 23, 1910.

19-w

The Western Gas Construction Company,

Mr. E. C. White, Representative,

City.

Dear Sir:—

Replying to yours of the 23rd instant, beg leave to say that an answer to this communication is contained in our letter of the 18th instant, receipt of

(Testimony of C. A. Luckenbach.)
which you have acknowledged.

Yours respectfully,
**LOS ANGELES GAS AND ELECTRIC
CORPORATION.**

By C. A. LUCKENBACH,
Manager of Construction.

Approved as to form:

L. M. EDWARDS,

Assist. General Counsel. [227]

Q. (By Mr. GOUDGE.) Mr. Luckenbach, in addition to these two complaints of March 18 and March 23 that have been introduced in evidence, did you have any conversation or interview with anyone representing The Western Gas Construction Company on the subject of these letters, or either of them? A. I did.

Q. State when it occurred and who was present and where.

A. On the 18th of March upon receipt of the communication from Mr. White, in connection with Mr. Edwards, your associate, I went to the gas works and saw Mr. White, in presence of Mr. Edwards, Mr. Millard, who was then superintendent of gas manufacture at the gas works, and Mr. Young, who was then the inspector of operations and is now superintendent—

Q. For what company?

A. The Los Angeles Gas and Electric Corporation. Mr. Edwards asked Mr. White the direct question as to whether the bricks were satisfactory, and he said they were. He asked whether the bricks were deliv-

(Testimony of C. A. Luckenbach.)

ered to him in a satisfactory condition, and he said that they were; that the breaking up which he complained of occurred in the hoist and in the chute.

Q. Did you at that time make any memorandum of the conversation which you had with Mr. White in the presence of these persons you have spoken of?

A. I made a memorandum of the conversation immediately upon my return to the office in the gas works.

Q. Have you that memorandum?

A. This is the memorandum, yes, sir.

Q. How soon or how long in time after the conversation occurred did you make that memorandum?

A. Within half to three-quarters of an hour.

Q. I will ask you to state whether reference to that memorandum refreshes your recollection of the conversation had [228] between you and Mr. White on the 18th of March, 1910? A. It does.

Q. After consulting the memorandum and so refreshing your recollection, please state whether you have already testified fully as to the conversation that took place between you and Mr. White at that time, and if there is anything that did occur at that conversation that you have not already testified, state what it was.

A. There was nothing else. Immediately after this conversation, Mr. Edwards and myself got into the machine and returned to the office.

Q. Now, in addition to the complaint in communication of March 18, 1910, of Mr. White that you have testified to, and the communication of March 23d,

(Testimony of C. A. Luckenbach.)

1910, from Mr. White that you have already also identified, and the statements that were made in the conversation with Mr. White down at the gas works that you have just now testified to, were there any other complaints made to you by anyone representing or purporting to represent The Western Gas Construction Company concerning fuel furnished to them during this test from March 10 to March 30, or concerning any act or conduct of the Los Angeles Gas and Electric Corporation during that time?

A. There was not.

Q. Was there at that time or at any time that you have referred to in your testimony anyone connected with the Los Angeles Gas and Electric Corporation who had charge or control of construction of apparatus or supervision of construction of apparatus by others for the company, superior to yourself in the Los Angeles Gas and Electric Corporation—any higher officer who had charge of those matters?

A. I had charge of all of the construction.

Q. Do you know of any complaint other than the complaints [229] that you have just testified to that were made by and on behalf of The Western Gas Construction Company during the period of March 10 to March 30, 1910, concerning any act or conduct of the Los Angeles Gas and Electric Corporation, with reference to the performance of this contract?

A. I did not.

Q. Has anyone representing the Western Gas Construction Company or assuming to represent them at any time since that time told you of complaints that

(Testimony of C. A. Luckenbach.)

were made during that period other than the complaints you have testified to? A. They have not.

Q. I show you this document and ask you to state if you can say what it is.

A. It is a copy of a letter addressed to The Western Gas Construction Company by myself as manager of construction and R. M. Adams, as Secretary of the Los Angeles Gas and Electric Corporation, under date January 30, 1911.

Mr. GOUDGE.—We offer this in evidence, if the Court please, there being no objection on the ground that it is a copy.

(Mr. Goudge reads said letter in evidence and the same is marked Plaintiff's Exhibit No. 28, and is as follows:) [230]

Plaintiff's Exhibit No. 28.

June 30th, 1911. 19

The Western Gas Construction Company,
Fort Wayne, Indiana.

Gentlemen:—

On April 10th, 1910, we requested of you that you remove your water-gas apparatus from our premises in accordance with the terms of our contract of July 12th, 1909. On May 10th, 1910, we received a letter from you in which you refuse to remove said apparatus from our premises. We have, however, waited over six months since the receipt of your letter in order to give you ample opportunity to remove said apparatus, and you having failed to do so we herewith notify you that unless you re-

(Testimony of C. A. Luckenbach.)

move said apparatus from our premises on or before February 15th, 1911, we shall on said day, or as soon thereafter as possible have said apparatus removed and stored in this city at your expense.

Very truly yours,

LOS ANGELES GAS AND ELECTRIC
CORPORATION.

By C. A. LUCKENBACH,
Manager of Construction.

By R. M. ADAMS,
Secretary.

cc B. S. PEDERSON,
Pacific Coast Representative. [231]

Q. (By Mr. GOUDGE.) At the time that letter was written, the apparatus had not been removed had it? A. It had not.

Q. Subsequent to the date of that letter, did The Western Gas Construction Company remove the apparatus? A. It did not.

Q. Subsequent to the date of that letter, has the apparatus been removed? If so, by whom and when?

A. It was removed by the Los Angeles Gas and Electric Corporation. The work of removal was begun on the 10th of April, 1911, and finished on the 25th day of May, 1911.

Q. And what was done with it?

A. The apparatus is stored in what is commonly known as our oil lot,—the oil lot of the Los Angeles Gas and Electric Corporation on Keller street between Macy and Aliso street.

(Testimony of C. A. Luckenbach.)

Q. How much, if you know, did it cost to remove the apparatus? A. The cost was \$1659.65.

Mr. GOUDGE.—That is all.

Cross-examination.

(By Mr. CHAPMAN.)

I am not a practical gas machine operator or engineer. I have studied chemistry. I have done some chemistry work, but not in gas engineering, however.

Q: Are you a college graduate in the science of chemistry?

A. No, sir; I have the degree of Bachelor of Metallurgy.

Q. To what extent have you studied the science of gas making or the operation of these machines?

A. I make no pretensions to being a gas engineer of any kind. My knowledge of the subject is simply that which I have derived from my connection with this company and the observation [232] of the operation of our plant. In the course of my duties I had charge of the negotiations which led up to the execution of this contract of April 8th, 1907; and those negotiations were carried on to an extent personally with Mr. Pederson, and additionally by correspondence with the corporation itself and with Mr. Pederson.

Q. Prior to the time that this first letter, written in February, 1907, by Mr. Pederson, in which he informed you that certain blue-prints and plans or specifications had been sent you, had you had some personal interviews with him?

(Testimony of C. A. Luckenbach.)

A. My recollection is that the very first steps taken in connection with this were with Mr. Pederson personally when he was in Los Angeles. Mr. Pederson traveled back and forth over the coast representing this company at the time, and called on me frequently with reference to gas apparatus.

Q. In the course of the first negotiations, what did you indicate to him was the character of the apparatus and the purpose of it?

A. As I recall it, I told him we wanted a water-gas apparatus to use carbon or lamp-black in as a fuel at our gas works.

Q. Did Mr. Pederson make no inquiry as to the nature of that and the manner in which it was to be served and used?

A. No, Mr. Pederson and I both well understood what the fuel was and what we desired to use.

Q. Do you mean to say that he did not ask leave to investigate and go to your plant and look over the ground?

A. I have no recollection of any such thing. Mr. Pederson had access and always had access to our plant.

Q. Don't you recall, Mr. Luckenbach, that in the course of these first negotiations that Mr. Pederson wanted a sample of that and you rang up Mr. Millard at the works and told Mr. Millard to furnish him with a sample? [233]

A. I have no recollection of any such thing. On the contrary, I have a distinct recollection of Mr. Pederson making a statement to me that he had a

(Testimony of C. A. Luckenbach.)

sample of the carbon.

Q. Don't you recall that you had in the office some samples that had been bricked, and Mr. Pederson was directed to come there and get his samples as a representative of what he would be required to use?

A. That I kept samples in my office?

Q. That your company did or the operators in charge of the works.

A. There may have been samples in Mr. Millard's office. I have seen samples there, yes, sir.

Q. Don't you recall explaining to Mr. Pederson that the briquets he had were a correct representation of what he would be required to use, except the form and shape of it?

A. Absolutely and unqualifiedly, no.

Q. To refresh your memory, didn't you inform Mr. Pederson that the material of which those samples were composed was similar to that which he would be required to use, but that you might not brick it into the small briquets, but if you didn't do that you would brick it?

A. No, sir; there was no such conversation between Mr. Pederson and myself.

Q. But you do remember that he reported to you that he had samples?

A. He stated to me that he had samples of the carbon or lamp-black.

Q. Did he tell you where he had gotten them?

A. No, sir.

Q. Did he tell you anything about their consistency or their stability?

(Testimony of C. A. Luckenbach.)

A. No, sir, not at that time. No, he did not.

[234]

Q. At any rate, you did understand that he had made an investigation and had seen the bricks or briquets, and that he was to base his guarantees upon what he found with respect to those samples?

A. No, I didn't understand anything of the kind. I asked him for a guarantee, understanding and believing that Mr. Pederson knew more about the lampblack than I did myself.

Q. Do you recall any conversation between yourself and Mr. Pederson that led up to your writing the letter of March 5, I believe it was, of 1907, in which you prefaced some remarks about the character of fuel by saying that in order that no misunderstanding might occur, the fuel was so and so? Do you recall any conversation that led up to the writing of that letter?

A. No, I do not. I think, as I recall it now, The Western Gas Construction Company were slow in getting in their figures. We were trying to get their figures and process and guaranties, and were also in correspondence with other parties. My recollection is that that statement is an exact copy of what was placed in letters to others.

Q. In other words, you had been negotiating with other firms, and in order that no misunderstanding might occur as to the character of the fuel and the manner in which it was to be delivered, you had this stereotyped detailed information which you were sending out? A. Yes, sir.

(Testimony of C. A. Luckenbach.)

Q. You had a great many conversations with Mr. Pederson, did you not, Mr. Luckenbach?

A. A great many, yes, sir.

Q. And you did not keep memorandums of these conversations did you, in all instances?

A. No, sir. [235]

Q. You do not pretend to be able to recall everything that was said and done with Mr. Pederson with absolute accuracy?

A. By no means, no, sir.

Q. Do you deny that Mr. Pederson and yourself did have a conversation shortly before this letter of March 5, 1907, was written, in which the subject of fuel was discussed and the manner in which it would be bricked and served was discussed, and that you stated to Mr. Pederson, "Now, in order that there be no misunderstanding, the best thing for me to do is to put this on record and send you a detailed statement of the nature of this fuel," and, accordingly, this letter of March 5 was written?

A. Yes, sir. I had no such conversation with Mr. Pederson.

Q. Would you say it did not occur?

A. Yes, as you relate it, I distinctly say it did not.

Q. I mean in substance.

A. Yes, sir. It did not occur.

Q. I call your attention to this language in this letter of March 5, 1907: "We are now negotiating for the purchase of a drier to handle all of our product, and anticipate that this drier will turn out our carbon with from five per cent to not to exceed

(Testimony of C. A. Luckenbach.)

ten per cent moisture." Did you refer there to a Cummers drier?

A. I don't know that I referred particularly to a Cummers drier. We did actually purchase a Cummers drier, but we were negotiating with several parties for a drier. I had in mind the purchase of a drier to eliminate the moisture from this material, and did purchase a drier which was a Cummers.

Q. How long after the execution of the contract did you install that apparatus?

A. After the execution of what contract?

Q. The contract of April 8th, 1907. [236]

A. It was installed during the year 1907. I can't give the exact date without referring to records, but it was well along in the summer or early fall before it was in operation.

Q. Was it in operation at the time the installation of this set as first constructed was completed?

A. As I recall now, it was, yes, sir, but I won't be certain without actually referring to the record. We had some trouble with that drier at the time it was installed, and there was some considerable delay in finally getting it into operation.

Q. What was the nature of the apparatus? How is it constructed, in a general way?

A. It is a cylinder heated from the outside, and the lamp-black passes through it from one end to the other, driving the moisture out. The apparatus is designed to handle the product in its loose and unbricked form.

Q. Have you that apparatus still in operation?

(Testimony of C. A. Luckenbach.)

A. Yes, sir, it is still in operation.

Q. The same apparatus that was purchased and installed pursuant to these negotiations that you speak of here?

A. Practically so. There have been some minor changes in it.

Q. Has its capacity been increased any?

A. No, not in that apparatus.

Q. What was its capacity?

A. That depends entirely upon the percentage of moisture in the carbon at the time it enters the drier, and the percentage of carbon at the time it leaves the drier.

Q. What is the capacity measured in respect to the dried carbon that would go through it, reduced to say ten per cent moisture?

A. My recollection is that it will handle sixty tons per day of lamp-black containing sixty-five per cent moisture at the [237] inlet, and reducing it to five per cent at the outlet—removing sixty per cent moisture.

Q. You can give us an approximation of the weight?

A. Well, it would have—somewhere in the neighborhood of thirty tons of dry carbon.

Q. I notice you say in this letter that you anticipate or that you are negotiating for the purchase of a drier which would handle "all of our product." Was this apparatus that you installed capable of handling all your product at that time?

A. I couldn't say whether it was or not.

(Testimony of C. A. Luckenbach.)

Q. As a matter of fact, were you not disappointed with the capacity of that machine?

A. We were testing, and after some experimenting we were not, and have since purchased another of the same kind.

A. In the first place, it did not turn out as you anticipated?

A. In the first trial of the machine it did not.

Q. How long before you perfected it so that it did become satisfactory?

A. I couldn't say. The machine from the time of its installation and operation would remove the poundage of water guaranteed by the contract.

Q. But would not handle the—

A. Yes, it would handle a larger amount in quantity, but not reduce the water to as small a content as the contract called for, due to the fact that when we got down to that percentage of moisture, the carbon itself would catch on fire.

Q. When you purchased the drier, your understanding was that it had a capacity to handle a certain tonnage of dry material, was it not?

A. No. Our understanding was that it would handle a certain tonnage of wet material, containing a certain percentage [238] of moisture and reduce that moisture to five per cent. My recollection is that it was sixty tons in weight in one day, reducing the moisture from sixty-five per cent to five per cent.

Q. You stated in your direct examination in answer to a question of Mr. Goudge as to the man-

(Testimony of C. A. Luckenbach.)

ner of treating the material during the years 1907 and '8, that you had treated some of it before bricking and then bricked it, and then others you had bricked moist and dried them afterwards, did you not?

A. Yes, sir.

Q. Do you mean by that that all of the material during the operation of this machine was not passed through that machine?

A. I do not understand your question.

Q. Did you mean by that answer when you said that part of the material had been bricked wet and then dried and part had been dried first and then bricked, that all of the material did not go through the Cummer drier?

A. What do you mean by "all of the material"?

Q. All of the material that was manufactured into bricks that was used in this apparatus during any of its trials or tests.

A. To the best of my recollection and belief, all the material used did not go through the Cummers drier.

Q. Could you give us an idea what part of it did and what part did not? A. I cannot, no, sir.

Q. Was it half and half?

A. I wouldn't like to venture a statement.

Q. There was a considerable quantity that was bricked before drying and a considerable percentage after?

A. I cannot answer that question for the reason that my recollection is that the material that went into the bricks—went to make up the bricks—was none of it—that in no one brick or in no one hopper

(Testimony of C. A. Luckenbach.)

of carbon was all of the material [239] which had gone through the drier.

Q. You know that to be a fact?

A. That is my recollection.

Q. Now, you say after this contract was installed, in the course of time, the apparatus as first designed, or at least purporting to be first designed, was installed,—did you have supervision of the installation of it? That is, the oversight of it from the gas company's standpoint?

A. Not the direct oversight of the installation; no, sir. I was manager of the department that installed it, but I was not the man on the ground that looked to see that it was installed according to the specifications or installed properly.

Q. You did see it, however, on many occasions during the time it was in the course of installation and afterwards, did you not? A. Yes, sir.

Q. Before we leave the drier again, when was the second drier installed? When did you increase your capacity for drying?

A. The drier was installed last year, after this test was over.

Q. Referring to this water-gas set, I now ask you whether as manager of construction you had charge of the work here which was being installed, in so far as the gas company had any oversight over it.

A. The men who installed it and had charge of the direct installation were under my control. I was not on the ground to see all of the installation.

Q. But you did see the apparatus many times?

(Testimony of C. A. Luckenbach.)

while it was being erected and afterwards?

A. Yes, sir.

Q. Was that apparatus enclosed in a building?

A. Yes, sir. [240]

Q. Was it set upon a foundation? A. It was.

Q. Was the foundation there constructed by your company or was it built by the construction company?

A. The foundation was constructed by the Los Angeles Gas and Electric Corporation according to the plans prepared and submitted by The Western Gas Construction Company.

Q. And the water-gas set was placed upon the foundations thus provided? A. Yes, sir.

Q. How was the generator attached to the foundation, in a general way?

A. It was set right on top of it.

Q. Was it attached by screws or bolts or in any other way, so far as you know?

A. Not that I know of.

Q. Just set on loose?

A. Set right on the foundation.

Q. The generator consists of a steel shell, does it not?

A. Yes, lined with brick on the inside and no brick on the outside.

Q. Was this generator brought here in the condition in which it stood upon the platform or the foundation, rather, or was it shipped here in parts?

A. The apparatus was brought here by The Western Gas Construction Company and installed in the

(Testimony of C. A. Luckenbach.)
plant on the foundation.

Q. Was it brought in parts and then erected by putting them together, by bolting or screwing, or was it brought here in the final shape?

A. Different parts were brought here and put together.

Q. And those parts were set upon this foundation and attached together by The Western Gas Construction Company? [241] A. Yes, sir.

Q. And the brick work, did that form any considerable part of the apparatus?

A. Quite a considerable part.

Q. How about the generator? Was it attached to the foundation in any way similar to that of the generator that you speak of?

A. I do not understand your question. You ask whether the generator was attached to the foundation, and I said it was placed upon the foundation. Now, I do not understand the question.

Q. I am asking what was the fact with reference to the carburetter. A. It stood in the same way.

Q. It is composed also to a large extent of brick work built up inside of the carburetter?

A. Yes, sir.

Q. And the other apparatus that form the component parts of the set are set up in the same manner? A. Yes, sir.

Q. And all enclosed?

A. Yes, it is all enclosed within the building; yes, sir.

Q. And they are all attached together, are they

(Testimony of C. A. Luckenbach.)

not? A. Yes, sir.

Q. And also connected with your gas manufacturing and distributing system?

A. Well, yes, they are. There is a pipe-line or was a pipe-line from the outlet of this set to the general manufacturing plant of the company.

Q. And also pipe-lines leading from your steam boilers to the set?

A. Yes, sir, to convey the steam. Oil to convey the oil, [242] and water to convey the water.

Q. Pipes to convey the water? A. Yes, sir.

Q. Now, when you removed this set you took it apart, I suppose, did you not? A. Yes, sir.

Q. And it cost you something over sixteen hundred dollars to tear it down and haul it away?

A. Yes, sir, and stored it properly.

Q. How about the brick work?

A. I took the brick work out and piled it with the rest of the generator set.

Q. To do that you had to separate the bricks from themselves, they being attached together, did you not? A. Yes, some of them.

Q. And you piled that up in the storage house?

A. Yes, in the storage on Keller street.

Q. You said something about an interview that occurred about the 16th day of June, 1908, at Mr. Trippet's office, at which were present, Mr. Pederson and yourself, and at which there was a general discussion which took place with respect to the character of the fuel that the parties had been using and were expecting to use in the coming test?

(Testimony of C. A. Luckenbach.)

A. I did not confine it to the 16th of June. I said my recollection was it was within a week previous to the signing of this contract.

Q. And the criticism and the point of the discussion was excessive moisture in the fuel?

A. That was the main discussion, yes, sir.

Q. I believe you stated that the company sometimes resorted to plowing and harrowing and rolling in order to get the moisture out of the bricks? [243]

A. No, sir.

Q. I don't mean bricks, but out of the material.

A. Out of the material in the piles; yes, sir.

Q. Was that done in respect to the material that was bricked up for this apparatus?

A. It may have been and it may not have been. I couldn't say.

Q. That which you would handle that way, you did not run through the drier?

A. Possibly some was run through the drier and some was not. I believe most of it was used direct in lumps in our water-gas generators as they then existed or, possibly, as boiler fuel.

Q. In those sets since that time you used the bricks?

A. Part of the time bricks and part of the time lumps.

Q. You said something about there being a cement or binder inherent in this material.

A. No. I said that we used no binder or anything, to hold the material together, except what was inherent in the material itself.

(Testimony of C. A. Luckenbach.)

Q. I understood you to call it a cement or something of that kind.

A. No. I was specific to state that there was nothing put into the material to bind it together; that whatever held it together was in the material itself.

Q. Do you know what that is that was in the material?

A. I think it is the dead oils. Our experience has shown that the material will bind better with from sixteen to twenty-two per cent of moisture than it will dry.

Q. Do you claim that the moisture has an adhesive power and helps bind it?

A. I am not able to say from a technical standpoint what [244] the reason is, but I am prepared to say that our experience shows that when the material contains from sixteen to twenty-six per cent moisture, it binds better under pressure than when it contains no moisture.

The COURT.—This dead tar that you refer to being in the material—dead oil—is that carbon or lamp-black?

A. It is dead oil from the manufacture of gas, taken up in the lamp-black, passing through the generator and into the wash-box.

Q. It is not carbon or lamp-black?

A. Lamp-black is the by-product of gas manufacture, as it comes from the wash-box, and that product contains some dead oil in it.

Q. Which is not lamp-black?

(Testimony of C. A. Luckenbach.)

A. Yes. The lamp-black—that is one of the contents of the lamp-black.

Q. (By Mr. CHAPMAN.) You stated yesterday that your company had installed during the time that this controversy was pending, a brick machine that was similar to those used in regular brick-yards, did you not?

A. I don't think I said it was installed during this controversy. We had a brick press down there that had been installed.

Q. At all times when any brick was made to be furnished to this apparatus, you had a machine there that bricked them, did you not? A. Yes, sir.

Q. Do you know the capacity of that machine?

A. I could not tell you off-hand. There was one brick machine, a two-mould press, and another a four-mold press, and we were making bricks in—

Q. You don't know how much they would turn out in any [245] given time?

A. I would not like to give the capacity without checking it.

Q. You also had a briquet machine?

A. Yes, sir.

Q. Do you know the capacity of that machine?

A. No. It was a little less than the brick machine.

Q. Can you approximate it?

A. My impression is somewhere in the neighborhood of three tons a day, but I would not want to swear to that without looking it up.

Q. Do you mean each one had a capacity of that?

(Testimony of C. A. Luckenbach.)

A. No. You said the brick machine. I never paid any attention to that because it is not my department.

Q. You said you thought both were about the same capacity?

A. The two-mould press has not the same capacity as the four-mould press. The four-mould press, when used as a briquet press, is of slightly less capacity as a brick press, but just what the capacity is I don't know.

Q. What operator or representative of your company could give the capacity of those machines accurately?

A. The superintendent of the plant or assistant superintendent at the plant.

Q. What is the superintendent's name?

A. D. J. Young.

Q. You use the term "bricks" to describe the larger product of the machine, and "briquet" to indicate the smaller?

A. Yes, sir. The brick is the standard size of building brick. A briquet is round. I believe they are two inches and a quarter in diameter, and spherical.

The COURT.—Otherwise the material in the two are the same? A. Just the same; yes, sir. [246]

The COURT.—Briquets are simply a round ball?

A. It is not a round ball. It is flat on the ends and round—cylindrical.

Q. (By Mr. CHAPMAN.) Do you remember when Mr. White came to Los Angeles to take charge

(Testimony of C. A. Luckenbach.)

of the changes and alterations in the machine, along about December, 1909? A. Yes, sir.

Q. Did you have many interviews with him after he arrived here about the apparatus and the conditions? A. A great many times.

Q. Do you recall that when he first arrived here and the generator was in process of reconstruction, and he took charge of the work and carried it on until the early part of January, when the machine was in condition to commence making gas?

A. I would not give the exact dates, but he took charge of the building work from the time he arrived here until he left.

Q. Do you recall having any conversation with Mr. Pederson and Mr. White after Mr. White arrived here and the generator was finally completed, as to the proper tests and operations to balance the machine?

A. I have no recollection of any specific conversations in respect to that matter.

Q. Well, and general conversations?

A. No, I don't recall any.

Q. Do you recall that the machine was operated in the month of January for a few days?

A. I don't know—yes, there were three days when it was operated in January.

Q. Do you recall whether you had any understanding with Mr. White and Mr. Pederson about the length of time they should operate it for the purpose of experimenting with their air blast and balancing the machine? [247]

(Testimony of C. A. Luckenbach.)

A. Do you mean as to a specific time?

Q. Yes, generally, the time that they would be allowed for that purpose.

A. I don't recall it, but I know on a number of occasions I would ask Mr. Pederson and Mr. White how long it would take them before they would be ready to make gas.

Q. Can you recall in a general way what Mr. Pederson and Mr. White told you in that regard?

A. They would give me various dates. They would be ready on a certain day, and when that day came something would happen, and they would be ready at a later date, and that was postponed.

Q. Do you recall that after the preliminary, experimental operations commencing in January for a few days, that you mentioned, that there was then an explosion of an air blast line?

A. There was an explosion of an air-blast line, yes, sir.

Q. And that explosion occasioned considerable delay? A. It gave some delay, yes, sir.

Q. Besides that explosion, was there not another accident, the explosion of a tank or something that resulted in a serious injury to an operator?

A. There was an explosion in connection with the seal or the scrubber. The scrubber.

Q. Was that along about that time in January?

A. I would not give you the exact date, but it was along after Mr. White came here.

Q. Your counsel introduced a letter yesterday from Mr. White in which Mr. White indicated his

(Testimony of C. A. Luckenbach.)

desire to be furnished with bricks containing from sixteen to twenty-five per cent moisture rather than ten per cent.

A. I recall that letter.

Q. Do you know the occasion of writing that letter?

A. No. To the best of my recollection, that letter was [248] presented to the company when I was at home ill.

Q. You do remember, do you not, that there was some difference of opinion between Mr. Millard and Mr. Pederson and Mr. White, or rather, some speculation as to whether the bricks or larger percentage of moisture would not make gas better than bricks of a less per cent?

A. I never heard of such a thing.

Q. You never heard that Mr. Millard had advised Mr. White to use bricks of greater moisture than bricks containing ten per cent?

A. I never knew that Mr. Millard had advised Mr. White to do anything. If he did, it was in direct violation of his instructions.

Q. Who was Mr. Millard?

A. He was superintendent of the plant at that time.

Q. Do you mean to say that Mr. Millard was instructed not to give them any instructions of any kind?

A. The instructions were that The Western Gas Construction Company were to operate the sets themselves.

(Testimony of C. A. Luckenbach.)

Q. And assume the sole responsibility?

A. Yes, sir.

Q. Use their own judgment as to everything in connection with the operation? A. Yes, sir.

Q. Entirely independent of your operators?

A. Yes, sir.

Q. Now, do you recall also, that when Mr. Pederson came later, in December, he gave you a letter that indicated that they had changed their mind and desired brick of lesser content of moisture?

A. Yes, sir. That letter was presented to me by Mr. Pederson. [249]

Q. Did you have bricks of both character at that time, those that contained a per cent of less moisture and those with more than that quantity?

A. I believe the bricks—I couldn't swear as to the percentage of moisture, but I would say those bricks as a whole contained more than ten per cent moisture.

Q. The greater quantity that you had there had been air dried in part and partly dried through a Cummer machine?

A. I couldn't swear to that. The bricks were never dried in the Cummer machine.

Q. I don't mean that. I mean the material.

A. The material might have gone through the Cummer drier at times. I couldn't swear to it.

Q. You recall the taking of your deposition, do you not, some weeks ago in this matter? A. Yes, sir.

Q. In that deposition, did you not testify that the brick you had there had been principally air-dried,

(Testimony of C. A. Luckenbach.)

although a portion of the material might have gone through the drier and probably did go through the drier?

A. I don't think I testified they were air-dried.

Q. On page 24 of your deposition: "Q. Now, up to the time of the test had you made any preparations for accumulating a supply of brick to be used during this test? A. We had a large amount of brick on hand. Q. How was it prepared? A. It was made in brick machines. Q. It was brick? A. It was brick. Q. And had it been dried any? A. Air-dried, as far as I know, was the only drying. Some of it may have been dried and some of it may not. I could not tell definitely. Q. Prior to that time you had installed what is called a Cummer's drier, had you not? A. We had a Cummer drier, yes, sir. Q. Were you making use of that at that time? A. I believe we [250] were, yes, sir. Q. Did you make use of that drier continuously from the time the experiments started up until the test was ended? A. I couldn't say as to that. The operation of the drier was not in my department, and I would not like to say it was continuous." Did you so testify?

A. I testified to that, yes, sir. Bricks were made and set out in the air, in the open air, piled.

Q. Do you recall when the gas machine was first started in January that it required several days to dry it out before gas making could proceed?

A. I presume the brick work had to be dried out.

Q. That is customary, isn't it, to load up with a wood fire first and gradually heat up the machine in

(Testimony of C. A. Luckenbach.)

order that it may become thoroughly dry before you make gas?

A. We always dry out all our brick work.

Q. After that machine was operated those few days in January and after the explosion occurred, do you recall having some conversation with Mr. White about the unsatisfactory method of charging the machine with fuel?

A. I couldn't say it was at that time. Mr. White spoke to me about the unsatisfactory condition of charging, but whether it was that specific time, I couldn't say.

Q. What do you recall about that conversation?

A. He spoke about it taking considerable time to charge, and he wanted to get some wheel barrows or wagons with which he was to charge the machine, and I believe did order some wagons or wheel barrows from San Francisco, and afterwards discarded them.

Q. Wasn't there some talk also of allowing him credit in that operation of the machine and the test for the unusual or extra length of time it took to charge by reason of the necessity of shovelling rather than to have some device that did it [251] mechanically? A. No.

Q. Nothing of the kind? A. No.

Q. Was there any talk about building chutes to handle the material? A. Additional chutes?

Q. Yes. A. Not with me, no, sir.

Q. Was there any talk about putting on extra men, and each company charging half the expenses?

A. Yes, sir.

(Testimony of C. A. Luckenbach.)

Q. What was finally done about that?

A. I believe they did put on extra men. They were authorized to do so.

Q. Was that method pursued during the test?

A. That is my understanding.

Q. Don't you know that they had some chutes there to handle material without the necessity of shoveling it?

A. There was a chute from the bin, but I don't know of any other chute.

Q. Where was the brick made with reference to the position of the machine, what distance?

A. I couldn't swear positively where those bricks came from. We had one brick press that stood where what was commonly known as the old drier stood on Keller street north of Aliso street. We had another brick press on Howard street, which was on the west side of Center street, and it may have come from either one of these. It may have come from either one of these. It may have come from the brick press at Macy street—I couldn't tell where it came from.

Q. In either event that fuel had to be hauled a block or more before it could be used in the generator? [252]

A. I should say from three or four hundred feet to a block.

Q. And they were loaded on wagons and hauled to the generator? A. Yes, sir.

Q. During the test? A. Yes, sir.

Q. After they arrived at the generator, do you

(Testimony of C. A. Luckenbach.)

know how they were handled before they actually went into the fire?

A. They were put into a pit, and from that into a skip, and hoisted and from there dropped into a bin.

Q. They were first dumped off the wagon into a pit? A. Yes, sir.

Q. How deep was that pit?

A. Six or eight feet.

Q. Descended from the top of the wagon six or eight feet underground inside of this pit?

A. Yes, sir.

Q. Onto a platform, did they not?

A. Onto the bottom of the pit.

Q. Wasn't there a platform there that caught the brick, or were they dumped into a bucket?

A. I couldn't say. They might have gone onto the ground and then been shoved into the pit.

Q. Anyway they were dropped into a bucket and hoisted?

A. Yes—into a skip, twenty-five or thirty feet; after they were lifted to that place they were put into a bin there. They then went in through a chute into the generator. That apparatus for charging the machine was constructed by our company.

Q. Was there not some change made in it by The Western Gas Company with respect to making it available for the new generator?

A. There may have been. I don't know of any.

[253]

Q. You do know that the bin and the chutes were perforated to eliminate to an extent broken particles or dust?

(Testimony of C. A. Luckenbach.)

A. The chute was perforated, yes, sir.

Q. Do you remember what date in February the machine was again started up after this accident to the blast line?

A. The first record I have of any gas being made is on the 17th of February.

Q. While they were operating on that preliminary test you became impatient about the delay in starting the final test?

A. Yes, sir. I don't know whether I began to be impatient then.

Q. You had been for some time? A. Yes, sir.

Q. And you wrote this letter of February 25, 1910, which is offered in evidence, in which you said that you had been informed that the final test would be started on January 24, 1910, and "owing to the injury to our blast line and the accident to your apparatus, the commencement of the test was delayed several days while you made necessary repairs, etc."—did you get a reply to that letter?

A. I would like to look over my correspondence before I answer that.

Mr. CHAPMAN.—I will ask counsel if they have a letter signed by Mr. Trippet, dated the 26th of January, in reply to this.

Mr. EDWARDS.—We have one February 26th.

Mr. CHAPMAN.—That is what I meant. (Letter handed to counsel.) It is agreed that this is the reply to that letter?

Mr. GOUDGE.—Yes, sir.

Mr. CHAPMAN.—We offer it in evidence.

(Said letter is read into evidence and marked Defendant's Exhibit "A," and is as follows:) [254]

Defendant's Exhibit "A."

OSCAR A. TRIPPET,
Room 315 Coulter Building,
Los Angeles, Cal.

February 26, 1910.

Mr. C. A. Luckenbach, Manager,
Los Angeles Gas and Electric Corporation,
City.

Dear Sir:—

Referring to *you* 19-w of February 25th to Mr. E. C. White. Mr. White informs me in regard to his promise to commence the final test on January 24th,—anyhow the *the* apparatus was damaged as stated in your letter, and could not be operated. Mr. White tells me that the apparatus is not in condition for the test, and that is the reason that the test has not been proceeded with. In regard to commencing the test March 1, 1910, Mr. White assures me that he will prosecute preparation for the test with the utmost diligence, and of course we expect to adhere to the contract. He thinks possibly that he will be ready to commence the test March 1st, but cannot give positive assurance to that end, and it seems to me that it is unreasonable for you in this stage of the matter to fix a definite time for the beginning of the test. I am willing to meet all suggestions that may worry or annoy you in the prosecution of this work, as I did in our oral consultation. I propose to assure you, as I did your Mr. Edwards, that the apprehended diffi-

(Testimony of C. A. Luckenbach.)

culties may be met by negotiation and contract. I had no reason to consider this matter until Mr. Edwards called my attention to it this week, and I told him that if he would have Mr. White come up I would take the matter up with him. The first opportunity I have had to investigate the matter was [255] yesterday when you and Mr. Edwards and Mr. White came to my office. Now I assure you Mr. Luckenbach that no dilly-dallying or foolishness in regard to this matter shall take place with my consent. My clients have a large investment depending upon successful operation of this plant, and what is reasonably necessary in the preparation to make the test is something that lies only in the skilled operator, and I must necessarily rely on Mr. White in that behalf. But I want to assure you again that I have cautioned him that he must use every possible endeavor to satisfy you in the premises. I understand that you want this machine, and want it to be a success, and that is all we want; and Mr. White tells me that he believes he can attain the success by proper preparation and balancing the set. I do not believe that you or I will quarrel about these things. If anything goes wrong, come to me about it.

OSCAR A. TRIPPET.

P. S.: Mr. White tells me there is a controversy about the "blow up." I would be glad to take that up and believe it can be properly adjusted. [256]

Q. (By Mr. CHAPMAN.) Now, it would seem from this letter that you and Mr. Edwards and Mr. Trippet and Mr. White had had a meeting. Do you recall that?

(Testimony of C. A. Luckenbach.)

A. I remember being at—I would not have remembered it except from that letter, but I remember that I was at Mr. Trippet's office with Mr. White and Mr. Edwards.

Q. Do you recall that at that interview it was explained to you that this being an absolutely new generator, and having air blasts and different apparatus, that it was necessary to adjust them before they could get satisfactory results, that it would require considerable time to experiment and to adjust things before they would be in a position to go ahead with the final test?

A. That was always the claim from the time the first set was installed.

Q. You know that to be a fact, do you not, that a generator cannot be operated economically and properly until after certain experiments have been made in order to ascertain the quantity of air and the quantity of steam to be supplied?

A. There is a certain amount of adjustment necessary.

Q. The length of the blow and the length of the run, those things are all causes for experiment, are they not, to a large extent?

A. I would hardly call it experiment.

Q. What would you call it?

A. Our experience has not been that we had to experiment for a year or several months before we could get a generator in operation.

Q. Was there anything said about the insufficiency or inadequacy of the pressure on your air blast?

(Testimony of C. A. Luckenbach.)

A. I don't know whether there was or not.

Q. Don't you remember that you were furnishing about a [257] sixteen inch blast, and Mr. White was insisting that that was not sufficient?

A. I think you will find—the only recollection I have of any question of the blast is in connection with the letter in March, I believe. It was in either one of these two letters in March that Mr. White stated that the engineer had raised the blast the day previous.

Q. Finally, after persistent solicitation on his part, you did raise the blast from sixteen to twenty inch pressure?

A. One day the blast was too heavy, and the next day the blast was too light. It was switched from one thing to the other continually.

Q. Do you mean to say that he complained that the pressure was too great at any time?

A. No. I said one day he was trying a heavy blast and the next day a light blast and it was switched from one thing to another.

Q. And you finally raised it to twenty-four inches, at least the engineer did say he had increased it?

A. My instructions at the plant were to comply with Mr. White's commands in every respect, to let him ask what he wanted and to give it to him.

Q. Didn't Mr. White also complain to you that it was necessary to experiment some time with this fuel?

A. He may have done so, but I would not say. I wouldn't say that he did or that he did not.

(Testimony of C. A. Luckenbach.)

Q. After that interview at Mr. Trippet's office, did not Mr. White come to your office and plead with you to give him more time?

A. Yes, sir. He was at my office several times in reference to time, and different conditions.

Q. He explained to you that they would not have anything [258] like a fair chance if they started on March 1st?

A. I believe he did.

Q. And after much solicitation you consented to give him ten days more, and no more?

A. We consented to extend the time to March 10th.

Q. And as a condition of that you asked Mr. White to put his willingness to proceed on that day in writing?

A. Mr. White said he would proceed on March 10th, that he would be ready at that time, and previous to that time I would ask "When will you be ready to proceed with this?" "We will be ready on such a day." And when the day came it was postponed, and I asked for his statement to that effect.

Q. I asked about this particular interview?

A. I believe I asked him to sign that, if I am not mistaken. I wrote the typewritten copy.

Q. You dictated the latter and told Mr. White if he would sign that letter you would extend his time ten days?

A. That is my recollection of the matter.

Q. And the letter that you dictated is the letter of February 28, 1911, signed by Mr. White, which is in evidence?

(Testimony of C. A. Luckenbach.)

A. I presume that is the date of the letter that was read yesterday.

Q. After that letter was written, then you dictated a reply to it, consenting to the extension of time?

A. That is my recollection of the matter, yes.

Q. And on the same day you received another letter from Mr. White, did you not, dated February 28, 1910, one in which mention was made that the chief engineer had raised the speed of the engine and increased the pressure in the air blast?

A. I couldn't swear as to the date I received the letter without seeing the latter.

Q. Before this test started on the 10th of March you had [259] another call from Mr. White, did you not? On the 9th of March didn't Mr. White call on you about getting more time?

A. Yes, he did.

Q. Didn't he tell you at that time that the machine was not in condition to proceed, that he hadn't had sufficient time to make the necessary adjustments?

A. I don't think that was the reason that he assigned for wanting the extension.

Q. What reasons did he give?

A. I think it was stated that his carbureter was choked, and he wanted time to clean his carbureter.

Q. Didn't he also tell you that Mr. Pederson was out of the city, and he wanted him present at the time the test took place?

A. There was a statement from Mr. White that Mr. Pederson was not present, and the company desired him to be present, but whether it was in con-

(Testimony of C. A. Luckenbach.)

nection with that date or not I wouldn't say without looking at the correspondence.

Q. Didn't he explain to you that he was the only representative of the defendant company on the ground, and he could not be there twenty-four hours a day?

A. I say he did make that statement to me, but whether it was the date of March 9th, as you say, I would not be positive without looking at the correspondence. The letter was put in evidence yesterday, I think.

Q. It was a very short time before the test started, anyway? A. That is my recollection of it.

Q. And he also explained to you that they had put in a new or additional air blast or air supply of some kind, and he wanted to try that before starting?

A. No, sir. [260]

Q. Wasn't it explained to you that Mr. Pederson could not reach Los Angeles on account of floods or washouts that had delayed his transit here?

A. I don't know what reasons were given for it. At the time to which I refer, without specifying or stating it was the 9th of March, Mr. White did state that the company desired Mr. Pederson present, and that he was not present, but I don't think it was March 9th.

Q. You don't recollect when it was?

A. No, I do not. My impression is that there was some letter in which he stated if Mr. Pederson arrived before the date that they would begin the test before the date.

(Testimony of C. A. Luckenbach.)

Q. What was your reply to his request for more time?

A. We didn't grant any extension of time beyond the 10th.

Q. You refused it? A. Yes, sir.

Q. Did you tell him that if they refused or did not commence the final test on that date that you would not supply him with any fuel, and take your operators away? A. No.

Q. What did you tell him.

A. I told him we would not grant an extension.

Q. I will ask you to look at the copy of a letter and ask you if you recall having received such a letter?

A. I have no recollection of receiving this letter at all, no sir. I would not say positive I have not, without looking over my files. If I did it is in the file on the table.

Q. Do you recall any communications, conversations, or telephone message being sent you on March 9th by Mr. White, telling you that he had not succeeded in getting his fires up, and wanted another day?

A. May I see that file a moment, Mr. Edwards? (After [261] referring to the file.) On the afternoon of March 9th, Mr. White, the representative of The Western Gas Construction Company, came to my office and asked for one day's extension within which to begin the test of the set. I received no letter from him in reference to it. He asked for consent to begin on the morning of the 11th instead of

(Testimony of C. A. Luckenbach.)

the morning of the 10th. I refused to accede to it. He than stated to me that no arrangement had been made for cleaning out time and asked me to consent to an allowance of one day in every seven for time within which to clean out the set. I told him we would not consent to any variation from the form of the contract, and would make no concessions of any time until the test was completed. I stated to him after the twenty days test was completed he would be at liberty to present such requests for concessions as to time lost as he saw fit, and we would then consider them and act upon them. That until the test was fully completed we would stand strictly on the wording of our contract as it then existed. I am reading from a memorandum made at the time, signed by me, and put in my file.

Q. You meant then to convey to Mr. White the idea that you stood on the contract and to mean that they were not entitled to lay off those machines a day or a week or any time to clean them out and receive credit for it?

A. I didn't tell him anything about that. I said we would stand strictly on the wording of the contract. I was not interpreting the contract.

Q. You do not mean to say that you wished to convey that understanding to him, that he was not entitled to credit in the contract?

A. I told Mr. White specifically after the test was completed, that was a matter that could be adjusted then.

The COURT.—I think the question may be an-

(Testimony of C. A. Luckenbach.)
swered yes or no. [262]

A. I don't like to answer that question either yes or no.

The COURT.—You can answer it yes or no, and explain it.

A. No.

The COURT.—Make any explanation you want.

A. I did not intend to convey any meaning to Mr. White. It was up to him to interpret his own contract.

Q. (By Mr. CHAPMAN.) And what was your attitude or understanding about the contract you considered none of his business?

A. No. He had the contract, and it was just as much his business to interpret it as it was ours. We were not interpreting his contract for him, and I didn't want to commit myself either one or the other on the proposition, and repeatedly refused to do so.

Q. You did know what was in your mind, didn't you, at the time, about what your understanding of the contract was?

A. Possibly I did, yes. I don't think I had given it much thought. I had told Mr. White that was a question that might not arise, and it was a question that there was no need of discussing at that time.

Q. Wasn't Mr. Millard present?

A. No, sir. Mr. C. P. Houghton was present and heard the conversation.

Q. Wasn't Mr. Millard present on any occasion when that question was discussed?

A. I would not say he was not.

(Testimony of C. A. Luckenbach.)

Q. It was a practice in your own water-set to lay off a day each week for cleaning out?

A. No, sir, it is not. We lay off every generator in our works one day in seven to go over and see that everything is in proper working condition, whether the set shows any indication of being out of whack or not. But in computing or figuring the capacity of the set we pay no attention to how much it is out.

[263]

Q. Nevertheless, your practice is in operating all your sets, to lay them off one day in seven for the purpose of repairing anything that has gone wrong, and if anything has gone wrong you do repair it?

Mr. GOUDGE.—Objected to as incompetent, irrelevant and immaterial, not cross-examination, and cannot have anything to do with this contract. This contractor said he would run this generator for twenty days. It is not material here.

The COURT.—It is cross-examination, and I shall permit the question to be answered.

• A. Yes, sir.

Q. (By Mr. CHAPMAN.) Is it not the practice, during that period of cessation of operation, to start the fires through the carburetter and burn it out?

A. They do everything that is necessary to put it in proper condition.

Q. Isn't that one of the things necessary?

A. It might be necessary and it might not be.

Q. Isn't that always done?

A. I presume it is done, yes, sir.

Q. When this machine was shut down or just be-

(Testimony of C. A. Luckenbach.)

fore it was shut down on the morning of the 14th of March, did Mr. White telephone you and tell you that he thought his carbureter was clogged owing to the fact that they had not started with a clean carbureter? A. Yes, sir.

Q. And that he found it necessary to shut down and recheck, and wanted credit for the time consumed in that?

A. At nine o'clock on the morning of March 14th, 1910, Mr. White called me up on the 'phone, and stated that when he had asked for a postponement of the time to commence the official test from the morning of the 10th to the morning of the 11th [264] he had intended to clean out the carbureter and replace the checker-work in the carbureter, but that he hadn't done so, and the result was that the set was very dirty and in very bad condition, and that he desired to shut down the set for two or three days in order to do this work. I told him that was a matter for him to decide; that he had started upon his official test; and it was up to him to comply with the requirements of his contract. That if he saw fit not to make any gas on a given day that was his fault and not ours, but that the time lost would certainly be counted in in making up the average of gas made by the set. He stated he understood that but that he thought he would gain by it, and therefore intended to shut down the set. He also stated that he understood we were willing to allow him one day in seven for cleaning out. I immediately contradicted the statement and told him no such agree-

(Testimony of C. A. Luckenbach.)

ment had been made, but that I had stated to him in the presence of Mr. C. P. Houghton that his test must be made, and then if he desired to present any reasons why he should be given any credits account of lost time, we would receive and consider them, but that we would not be bound by anything except the strict wording of the contract. I made this memorandum immediately upon hanging up the 'phone. At the time this memorandum was made and at the time the conversation took place, Mr. W. J. Dorr, superintendent of gas distribution, was sitting beside me at my table, and certifies to it.

Q. Mr. White rang you up and asked permission to shut down? A. Yes, sir.

Q. And still told you that he understood he had a perfect right to shut it down, and was not entitled to credit for the time he was not operating?

A. Mr. White was endeavoring to trick me—Mr. White called up and wanted permission to shut down a set. Stating [265] that on the 10th he had intended to clean out the carbureter, and replace the checker-work in the carbureter. He said he understood that, but that he expected to gain by it.

Q. Did he explain why he rang you up if he understood he had a right to shut down and was entitled to no credit? A. He did not.

Q. You don't know why he rang you up?

A. I have my belief.

Q. What is your belief?

A. I believe he wanted to try and get me to consent to a shut-down.

(Testimony of C. A. Luckenbach.)

Q. Of course he rang you up to get your consent to a credit for the time? A. Yes, I presume so.

Q. And he asked you for the credit?

A. He said he understood we were to give him credit.

Q. Is that the only interview you had with him about it, about receiving credit for the time?

A. No. I think he referred to it several times.

Q. Didn't he ask your permission to let the test be made as commencing when he started up again with a new carbureter?

A. No. The only question was the request of one day in seven for cleaning.

Q. Didn't he ask you if it wouldn't be agreeable to you to permit the test commence the day he started with a clean carbureter after re-checking it, and continue for twenty days?

A. Do you mean on March 14th?

Q. At any time? A. No, sir.

Q. Didn't you tell him in some interview with him while that re-checking was going on, that you folks took the position that that test must end the morning of the 30th of March, and [266] that the test would be deemed to be the twenty days from the 10th to the 30th? A. I believe I did.

Q. In that same connection and in the same conversation didn't he suggest to you that you permit them to treat the test as starting from the 17th, the day they commenced operations again?

A. No, sir.

Q. Did Mr. Pederson make any such request as

(Testimony of C. A. Luckenbach.)

that? A. I believe not.

Q. Did Mr. Trippet?

A. No, I think not. I don't think Mr. Trippet ever spoke about that.

Q. He did resume operations on the 17th, did he not? A. No. He made some gas on the 16th.

Q. He was building up his fires on the 16th, and made some gas on the 16th?

A. He made some on the 16th. Then he had a few days before the 17th, and from then on until the end of the test.

Q. The morning of the 18th, or rather, on the 18th, you got this letter from Mr. White protesting against the condition of the fuel, that has been offered in evidence?

A. I believe that was the date, yes, sir.

Q. And you sent in a reply in which you told him that you considered that the brick furnished was in accordance with the terms of the contract, and that he would have to accept it?

A. You refer to a letter that was filed?

Q. Yes. A. Yes, sir.

Q. You also made a call there with your attorney, Mr. Edwards, on Mr. White?

A. That was previous to sending the letter. [267]

Q. You went down to see him first?

A. Yes, sir.

Q. And then wrote the letter? A. Yes, sir.

Q. Where did this interview take place?

A. In Mr. Millard's office.

Q. Did you send for Mr. White or was he there

(Testimony of C. A. Luckenbach.)

when you got there?

A. I would not answer positively, but my recollection is that when we went into the office Mr. White was there, standing in the clerical office at a desk. That is my recollection.

Q. Didn't he have with him some samples or specimens of brick that were being sent to him?

A. No, I don't think so.

Q. Didn't he show you how easily the brick pulverized, and how very unsatisfactory it was?

A. No, I have no recollection of his having shown us any brick.

Q. Didn't he complain to you that they crumbled to such an extent that something in the neighborhood of a third went down through these perforators?

A. He may have said so. I don't recollect that.

Q. Do you undertake to say that Mr. White expressed satisfaction with this brick?

A. You heard my statement just as I gave it yesterday. That was the statement he made at the time.

Q. That the bricks were in good condition?

A. Delivered to him at the press in good condition.

The COURT.—What was the date of this conversation?

Mr. CHAPMAN.—This is the 18th, during the test. The next day after they started up re-checking.

Q. How long were you parties there talking this matter over? [268]

A. We may have been there anywhere from fifteen minutes to half an hour.

(Testimony of C. A. Luckenbach.)

Q. Was White there all the time?

A. I think he was, but I think we turned and left him standing, went out and got into our machine and came back to the office.

Q. What were you doing there during that time?

A. We went down upon that specific thing.

Q. After you got there how were you passing the time during that fifteen minutes to half an hour?

A. I don't know. I wouldn't say, I couldn't answer you.

Q. You know you were talking and discussing this matter? A. Yes. That is what we went there for.

Q. You do not pretend that you put all that was said between all of you parties on that note, on that typewritten memorandum? A. No, sir.

Q. There was a good deal said besides what you made a note of? A. There may have been.

Q. You had that in order to make a record of what transpired?

A. I wanted to fix the time, and fix the matter, yes, sir.

Q. Why didn't you get Mr. White to certify, make and send him a copy, in order that the record might be acceded to? A. I don't know.

Q. Were you anticipating trouble or a law-suit growing out of this matter?

A. No, not in particular.

Q. Why did you write the letter after you had been down there and had an interview with him, and explain your position?

A. I was advised by counsel to do so. [269]

(Testimony of C. A. Luckenbach.)

Q. Didn't Mr. White ask you to go over and look at the conditions at the machine? A. At that time?

Q. Yes.

A. I have no recollection of his having done so; no, sir.

Q. Did you go over there?

A. I don't think we went to the machine on that occasion; no, sir.

Q. Didn't Mr. White want you to go?

A. I don't think so; no, sir.

Q. Didn't you tell him you didn't propose to go over there and dirty your clothes?

A. No, sir. I never told Mr. White at that time or any other time.

Q. Why didn't you go over and find out what the situation was?

A. We were down there to see what those bricks were, and Mr. White told Mr. Edwards the bricks were satisfactory, and we went back. I had heavy work and I went back to take care of it.

Q. You went down there to see what the condition of the bricks was. Why didn't you go over and see?

A. I didn't care, as long as they were satisfactory to the representative of The Western Gas Construction Company.

Q. After he had informed you that they were satisfactory, did you ask him why he had written you a letter previously complaining that they were not satisfactory? A. No, I did not.

Q. You didn't go into that?

A. No, sir. So far as I was concerned I was satisfied.

(Testimony of C. A. Luckenbach.)

Q. Didn't it occur to you that it was inconsistent with his writing of the letters, to say that they were satisfactory?

A. I didn't care whether it was consistent or inconsistent. [270]

Q. Did you have the letter with you which White had written you? A. I believe we did.

The COURT.—What is the date of that letter?

A. The 18th of March.

The COURT.—You went down immediately after the receipt, on the same day?

Q. (By Mr. CHAPMAN.) It was delivered to you personally, was it not?

A. Yes, I believe it was.

Q. Then you went right down? A. Yes, sir.

Q. Did you hear anything more about bad fuel until the letter which you produced yesterday, and which was offered in evidence, the 23d, in which a similar protest was made? A. No, sir.

Q. (By the COURT.) Let me see if I understand you. You say you got that letter and then went down at once to see White? A. Yes, sir.

Q. White then told you that the brick was satisfactory?

A. He answered a question put by Mr. Edwards. The exact form of the question and answer is: Mr. Edwards asked Mr. White the distinct question whether the bricks furnished him for use in the generator were in good condition when he received them. He replied that they were, and that they were all right. He stated that the bricks at the time they

(Testimony of C. A. Luckenbach.)

were delivered to him were whole, good bricks, and the breaking up of which he complained occurred after the bricks were put into the chute, and during the time they were passing from the entrance of the chute into the generator and while handling them through his own apparatus.

Q. (By Mr. CHAPMAN.) You say it was after that interview [271] that you went back to your office, and wrote this letter of reply?

A. It was after that interview, yes, sir.

Q. Is the hour of your conference noted on your memorandum? Can you give us that?

A. No. I cannot give you the exact hour, but it was in the morning.

Q. Did you write this letter in the afternoon or morning?

A. I believe that letter was written shortly after we returned to the office. I couldn't positively say whether it was in the morning or after lunch; I believe it was right after lunch when that letter was written.

Q. If you thought you had disposed of the entire controversy by finding that the bricks were satisfactory to Mr. White, you didn't you say as much in your letter? A. I don't know why I did not.

Q. Why didn't you embody the memorandum in that letter if you merely wanted to make a record?

A. I don't know why I did not.

Q. Now, after the machine was shut down on the 30th of March, or on the morning of the 30th of March, did you have any conversation with Mr.

(Testimony of C. A. Luckenbach.)

White about another test?

A. He came to my office in reference to the machine, yes, sir.

Q. Did he request permission to make another test?

A. I don't think that he made that specific request, although it might possibly be considered as equivalent to that. He said he thought they ought to have a right to make another test.

Q. That was after you had informed him that you would not accept the machine, and that you would demand your money back? A. Yes, sir. [272]

Q. And you complained to him also that there were some defects in the construction, or rather some mechanical defects about the machine?

A. I don't know whether we complained about that. Mr. White in that interview, one of the reasons that he gave for not making the full quantity of gas was that he lost a great deal of gas through the leakage in the top of his generator.

Q. What did he say about putting the machine in first-class shape if you would accept it?

A. He was willing to put it in condition provided we would accept the machine or consent to another test.

Q. There was a letter offered in evidence, dated January 30, 1911, in which you notified the company that you were going to remove the apparatus unless they did. Did you get a reply to that letter?

A. I think we did.

Q. Did you get a reply to that signed by Mr. Trippet?

(Testimony of C. A. Luckenbach.)

(A letter was here handed to counsel.)

Mr. CHAPMAN.—Do you agree this is the letter that was sent in reply?

Mr. EDWARDS.—Yes, sir.

Mr. CHAPMAN.—We offer it in evidence, dated February 8, 1911.

(Letter marked Defendant's Exhibit "B" and read in evidence, and is as follows:) [273]

Defendant's Exhibit "B."

OSCAR A. TRIPPET,

Attorney at Law,

Los Angeles, Cal.

February 8th, 1911.

To Los Angeles Gas and Electric Corporation.

Los Angeles, Cal.

Gentlemen:—

Your letter of January 30th, 1911, your number 19, to the Western Gas Construction Company, has been handed to me with instructions to answer, and in reply thereto I will say that under the agreements between the companies, I consider that the apparatus has been delivered to you, and it is yours and you have a right to do with it as you please. The only effect your destroying it will have is to destroy the evidence that we have complied with our contract. If I am wrong in the above proposition, and the apparatus belongs to the Western Gas Construction Company, then I contend that the Western Gas Construction Company has a right to have the apparatus remain as it is in order that a demonstration may be

(Testimony of C. A. Luckenbach.)

made that the apparatus fully complies with the contract, and to serve as evidence in the pending litigation. There are other reasons why the Western Gas Construction Company refused to remove the apparatus, but your arbitrary notice seems to make it necessary for us to specify reasons.

Yours very truly,

THE WESTERN GAS CONSTRUCTION
COMPANY.

By OSCAR A. TRIPPET,
Its Attorney.

Received February 15, 1911.

C. A. LUCKENBACH,

Manager of Construction. [274]

Q. (By Mr. CHAPMAN.) I believe you say that you removed the apparatus some time in May?

A. My recollection is that we began the removal the 10th day of April, and completed it on the 25th of May.

Q. Did you know at the time that you gave orders for the removal of that machine that this case was set for trial and expected to be tried in the following month?

A. I did not know when it was set for trial.

Q. (By the COURT.) Has the plaintiff devoted that lot on property on which this machine stood to any other use? A. Yes, sir.

Q. What?

A. There is an oil-gas generating set upon the same ground.

Q. (By Mr. CHAPMAN.) I call your attention

(Testimony of C. A. Luckenbach.)

to a letter dated April 6, 1910, addressed to your company and signed by Mr. White for the Construction Company, and ask you if that letter was received by you?

A. Yes, sir. This letter was received by me on April 7, 1910.

Q. Is that Mr. White's signature?

A. I believe that to be Mr. White's signature.

Mr. CHAPMAN.—We offer it in evidence.

(Letter marked Defendant's Exhibit "C," and read in evidence, and is as follows:) [275]

Defendant's Exhibit "C."

Los Angeles, Cal., April 6, 1910.

Los Angeles Gas and Electric Corporation,

Los Angeles, Cal.

Gentlemen:—

Attention Mr. Luckenbach.

I beg to acknowledge receipt of your letter of April 5th. Can only state that I will send a copy to Fort Wayne, and will be guided by their decision in the matter.

The writer called on your Mr. Luckenbach this morning and during the conversation he (Mr. Luckenbach) seemed to lay a great deal of stress on the fact that we did not make 20-candle-power gas. I reminded Mr. Luckenbach, while in his office, of the conversation I had with him when I first came to *you* city, to wit, that I noticed in the contract we were to supply from 20 to 22 candle-power gas, using 4½ candles per gallon. I stated that it would be rather awkward to comply with the above stipulations as

worded and that I presumed, took for granted, that candles per gallons would be satisfactory. In this Mr. Luckenbach acquiesced with me and said that would be satisfactory. He stated at this morning's meeting that he remembered making no such remark, and I have no doubt but what he is honest in his belief. It is only regretted that there was no one else in the office at the time to attest my statement to the affirmative. There was no intention to trick Mr. Luckenbach into making this remark on my part. I had made oil-gas at Texas, and knew that it was natural for the gas to be of higher candle-power than water-gas, and therefore easier when combined gas was made to have the water-gas of less candle-power than the oil-gas, thereby making a more proportional candle-power for the send-out; and this was the principle I worked on at the works, thinking, of course, it was what your company wanted. I in no way tried to keep the candle-power down, as it is of no material difference. The [276] men around the works gave me to understand that $18\frac{1}{2}$ to $19\frac{1}{2}$ candles was about the right proportion they required and about what the old water-gas sets had been making. This candle-power mixed with the run of your oil-gas made from time to time is about the ideal candle-power required for the sending out on the town. It is evident now, and has been ever since coming here, that your Manager of Construction has been extremely antagonistic and unfriendly toward our company. He has related time and again of the imaginary wrongs and impositions the Western Gas Construction Company had imposed upon the Los Angeles Gas and Electric

Corporation. Stated today that we had trouble with everyone that we ever did business with. I asked him to repeat that sentence and he said every one we had business with on the coast.

You will fully appreciate that any construction company is liable to make mistakes, and there are things come up that are unavoidable which cause friction. The U. G. I. as well as all the construction companies have their troubles, and there are people that will declare that they will never do business with them again, and all such remarks. I think the general impression is that the Western Gas and Construction Company are no exception to the rule, and have tried in the many years of their doing business to do the right thing and to please their customers.

As evidence of your animosity and feeling towards us, I call your attention to the fact that you have sent bills to us every two or three days for fittings, etc.; no matter how small these bills, it was understood that I was to pay the cash immediately. I do not recall how many checks I have drawn since being here in your favor. I told your Mr. Millard I would prefer to wait and not be drawing on so many small checks but he stated that he had orders to collect at once. [277] It is not necessary to go into this matter as fully as I could, and personally would like to, as it has no bearing on the case at this time.

From the tabulation of figures shown, and considering the conditions under which we had to work, we consider that we have fulfilled the terms of the contract. The grade of carbon furnished at times was extremely brittle, and owing to the character of being

kiln-dried, disintegrated, and the fine stuff in the generator gave us a great deal of trouble.

In conversation this morning with Mr. Luckenbach, he stated that there had been no understanding as to how the carbon was to be dried. Consequently, it was up to us to take it as they saw fit to furnish it, or discontinue the tests. I will not elaborate on this. The home office at Fort Wayne will bring this point out fully.

Regarding Mr. Luckenbach's statement that the matter would be taken to the courts, we are informed by our attorneys that we have an excellent case, and certainly intend to defend it to the best of our ability, should you see fit to bring suit to compel us to return the money and remove the set. We feel confident the machine can more than meet the guarantee and offer to make a test run and prove this assertion, which you have refused us the privilege of doing. We acknowledge that the top of the generator leaked badly, making it extremely inconvenient and disagreeable for the gas-makers and helpers on the floor. This, however, was a mechanical defect, as you know, as well as we do, and that by taking the head off and putting down proper gaskets between the flanges this difficulty will be overcome. It was our intention, if permitted to make a test run, to put "I" beams across the top of the generator as stiffeners, and to re-set the coal hole branches, placing asbestos gaskets between the flanges and the top of the generator. [278]

The writer learned this morning that nearly all of the carbon formed in the carbureter has burned out, and the carbureter would be in fit condition to go

ahead making gas at this time. Regarding the super-heater, if the bricks, as you say, have fallen down, we would certainly expect to replace them or set them up again as the requirements would necessitate. The machine showed no defects during the continuance of the test. We only lost eleven minutes altogether, with the exception of the time taken out for charging, cleaning and the 3 days on the recheckering.

We believe if you can give this matter serious thought you will realize that instead of our being childish, as you termed it this morning, that we would be simply imbecile if we, after making the figures that we did, were to comply with your request. The request to the writer's mind is simply absurd, and I believe that the Fort Wayne people will look at the matter in the same light. It is also my belief that any reasonable thinking person would, if the facts were put before them, consider that your request is simply absurd and inequitable in every sense of the word, and to comply with the same would be not much less than criminal confiscation to ask us to stand a loss of practically \$40,000. You will hear from our firm at Fort Wayne within the next few days.

Yours very truly,

THE WESTERN GAS CONSTRUCTION
COMPANY.

By E. C. WHITE. [279]

The WITNESS.—Mr Chapman, I would like to make a correction in the testimony I gave this morning. You asked me in reference to meeting Mr. Edwards, myself and Mr. Edwards with Mr. White, as to whether Mr. White had brought in any carbon. I

(Testimony of C. A. Luckenbach.)

have been thinking that matter over during the noon recess, and my recollection is that Mr. White did go out and get a carbon brick and bring it into the office, and I believe broke it in two in the office.

Q. (By Mr. CHAPMAN.) Didn't he at the same time kick it with his foot to show you how it pulverized?

A. I wouldn't like to say about that. My recollection is hazy, and I have been trying to fix it. I feel confident he did go and get a brick and bring it into the office.

Q. Were you assisted in your recollection by conference with Mr. Edwards?

A. I asked Mr. Edwards if he recollects it, and he said he thought it was correct.

Q. And he did bring the brick in your presence?

A. Yes, sir.

Q. And he showed you fissures in it due to driving out moisture?

A. No, my recollection is hazy, but he took the brick and broke it.

Q. In that same letter that was read before adjournment from Mr. White to yourself, on the 23d of March, there was some mention made of kiln-drying the bricks. Did you have anything to do with the kiln-drying of the bricks that took place down there?

A. Yes, I did.

Q. You gave the orders for the kiln-drying?

A. I gave the instructions to dry the brick, and that no brick containing more than 10 per cent moisture should be [280] delivered.

(Testimony of C. A. Luckenbach.)

Q. You had some rainstorms, had you not, that saturated the bricks more or less?

A. There had been rain while the bricks were out there.

Q. What did you tell them to do?

A. To dry the bricks to reduce the moisture to less than 10 per cent moisture.

Q. Isn't it a fact that you hired a large number of Mexicans and men to build large fires around?

A. Yes, sir.

Q. And created a great deal of smoke?

A. Yes, sir.

Q. So much that there was a great deal of complaint from the smoke inspector?

A. I don't know whether there was any complaint, but there was a visit, I think, of the inspector at that time.

Q. At any rate, it was necessary to apply to them an external fire of considerable magnitude?

A. Yes, sir.

Q. There was also some mention in that letter of hot bricks being served there. Do you recall anything about that?

A. That is in the letter of March 23d, I think, yes, sir.

Q. What did you do about that?

A. I called up Mr. Young, who was at the plant at that time and instructed him not to deliver any of that kind of brick to Mr. White, and he said that there were no further bricks of that kind being delivered. And that letter you will find a memorandum

(Testimony of C. A. Luckenbach.)

on in pencil stating the hour of the day when I gave the instructions.

Q. Do you recall what hour that was?

A. My recollection is now that it was 12:50.

Q. (By the COURT.) What date was that on? [281]

A. It was the date of the letter—

Q. The 18th? A. No, the 23d.

Q. (By Mr. CHAPMAN.) There was also some mention made in that letter of candle-power. Isn't it a fact that the gas that was produced in this water-gas machine after it was measured was turned into the oil-gas tank and mixed?

A. Which letter are you referring to now, Mr. Chapman?

Q. I am referring to the letter written by Mr. White after the test was closed, in which he narrated some interview that he had had with you concerning candle-power.

A. That is the letter of April 6th, as I recall. I remember that statement in the letter of April 6th.

Q. Do you recall of having any such interview with him?

A. No, sir. There was no such interview, and it was denied absolutely. I told Mr. White absolutely that there was no such interview.

Q. This water-gas after being mixed with oil-gas is then distributed to the customer? A. Yes, sir.

Q. I will ask you if you received this letter of April 2d, from Mr. White?

A. Yes, sir; I did. I received that letter on the 4th of April, 1910.

(Testimony of C. A. Luckenbach.)

(Mr. Chapman reads said letter in evidence, and the same is marked Defendant's Exhibit "D," and is as follows:) [282]

Defendant's Exhibit "D."

Los Angeles, Cal., April 2nd, 1910.

Los Angeles Gas and Electric Company,

Los Angeles, Cal.

Gentlemen:—

In consultation with your Mr. Luckenbach, we learned from him that he is not satisfied that the water-gas set constructed for you by the Western Gas Construction Company has made good the guarantees in the contract, and he seemed to be dissatisfied with the machine. Now, in order to avoid any controversy as to whether the machine has made the guarantees the Western Gas Construction Company would like to make a run to demonstrate to your entire satisfaction that the machine will do very much more than the guarantees. And in making this demonstration we are willing to run it any reasonable number of days you may demand to show that we are sincere and fully believe that the machine is fully capable of producing the guaranteed results.

Very truly yours,

THE WESTERN GAS CONSTRUCTION
COMPANY.

By E. C. WHITE.

Received April 4, 1910.

C. A. LUCKENBACH,

Manager of Construction. [283]

(Testimony of C. A. Luckenbach.)

Q. I believe you have already testified that to that offer you declined to accede? A. Yes, sir.

Q. There was also in this letter of Mr. White that was read just before adjournment some mention made of antagonism on your part toward the defendant company's operator. Do you recall that there was a breach resulted between yourself and Mr. White and Mr. Pederson—at least, toward the defendant company—growing out of their refusal to pay for the repair of that blast-pipe that exploded?

A. I never had anything to do with the repair of that.

Q. Do you remember an interview that took place between Mr. White and yourself and Mr. Vance at which the question of who should pay for this air-blast that exploded came up?

A. There was a conference with reference to that, yes, sir.

Q. Wasn't Mr. White interrogated as to whether his company had decided to stand that expense or not? A. I believe that is correct, yes, sir.

Q. And when he announced that they thought the obligation to stand that was on the Gas Company, is it not a fact that Mr. Vance and yourself expressed yourselves as through with the bunch of them?

A. No, we were very much displeased and thought we were not treated justly in the matter. We thought the explosion was due to the carelessness of employees of the Construction Company, and they should pay for the repairs.

Q. And didn't you and Mr. Vance tell Mr. White

(Testimony of C. A. Luckenbach.)

then and there that they shouldn't be given any more time to experiment with that set, and must go ahead and test it and come up to the strict letter of the contract, or the machine would be thrown out?

A. I don't think so. Mr. Vance had nothing to do with the [284] acceptance or rejection of that machine, or the test.

Q. Or words to that effect?

A. I don't remember any such statements being made. I know Mr. Vance was very angry at that time, and my recollection is that I was somewhat annoyed, because I believed it was interfering with something that was in my own department. I do not mean to create the impression that Mr. Vance was interfering with my department, but that this was interfering with work going on in my department, and I left the office and went back to my own office. The interview that you refer to took place in Mr. Vance's office.

Q. Didn't either yourself or Mr. Vance on that occasion go still further and say that even if the machine did make good, or whether it did make good or not, that you folks did not propose to have it and that you would rather tear it up and throw it out upon the dump? A. Absolutely, no, sir.

Redirect Examination.

(By Mr. GOUDGE.)

Q. Reference has been made to the fact that Mr. Pederson was not on the ground or was not expected to be here at the time the test was to commence on March 10th. Was Mr. Pederson here at any time

(Testimony of C. A. Luckenbach.)

during the test from March 10th to March 30th?

A. I wouldn't like to say, Mr. Goudge, without looking over those matters. I don't recall whether he was or not. I think he was, but I won't swear to that positively.

Q. Now, Mr. Luckenbach, you were interrogated on cross-examination with reference to the preparation of the chute. You said the chute down which the bricks were delivered to the generator was perforated. By whom was that work of perforating the chutes done? [285]

A. By The Western Gas Construction Company.

Q. Under whose direction was the generator or this set erected at your plant?

A. The original erection was done under the direction of the man sent here by the Western Gas Construction Company. His name was—

Q. I don't care for his name. The changes that were made in the supplemental contract, under whose direction and supervision were they made?

A. The Western Gas Construction Company.

Q. And as to the men that actually worked on the matter of the erection and installation of this plant, by whom were they employed?

A. The Western Gas Construction Company.

Q. You spoke in your cross-examination of the bricks being air-dried. Were you referring to the bricks that were furnished and used in this test or the bricks for carbon in the gas works generally?

A. The bricks that were used in this test were taken out of a stack in the air and up to the time re-

(Testimony of C. A. Luckenbach.)

ferred to there had been no drying except such as might have occurred from air-drying.

Q. What do you mean by "up to the time referred to"? What time is that?

A. That letter of Mr. Pederson's in which he withdrew Mr. White's previous letter, asking that the wet bricks be delivered.

Q. Prior to that time the bricks had only been air-dried? A. Yes, sir.

Q. When were these bricks made?

A. Well, I couldn't tell exactly, but a great quantity of them were made prior to or about in July—at the time this contract was made,—immediately after the contract. [286]

Q. That is in July of the year before the test?

A. Yes, sir.

Q. And were these same bricks on hand during all that time? A. Yes, sir.

Q. The bricks that were furnished to the Gas Construction Company for use in this test during the test, were a part of this stock that had been on hand that length of time? A. Yes, sir.

Q. You said also that some of the bricks had more than 10 per cent moisture in them, and some bricks had less than 10 per cent moisture. What bricks were you referring to when you said that?

A. The bricks in this general pile.

Q. Does it also refer to the bricks furnished for use in this test?

A. When I spoke of the general pile I meant the pile used for this test.

(Testimony of C. A. Luckenbach.)

Q. When you say some of the bricks had more than 10 per cent, and some less than that, do you mean those actually used and delivered to them?

A. No, I mean before the drying was done.

Q. Then, it refers to the general stock of bricks you had on hand from July the year previous?

A. Yes, sir.

Q. Some of those were more than 10 per cent?

A. Yes, sir.

Q. The bricks delivered, what do you say about them?

A. There were none delivered containing more than 10 per cent moisture.

Q. Do you mean during the test of twenty days?

A. Yes, sir.

Q. (By the COURT.) When could they deliver any other?

Mr. CHAPMAN.—During those experimental tests. [287]

Recross-examination.

(By Mr. CHAPMAN.)

Q. You don't mean that that entire stock of bricks was made all in one month?

A. Oh, no. A lot of those bricks were there for a very long period of time. They may have been there before July.

Q. And you added to them up to the time of the test?

A. No. There is a letter here from Mr. Pederson written on a hotel letter-head, addressed to me, in which he states the quantity of brick that would be

(Testimony of C. A. Luckenbach.)

required, and at that time we had the quantity of brick on hand, and that was done to check up to see whether we would have it. Some bricks were added after that time, but there was a quantity on hand at that time.

Q. (By Mr. GOUDGE.) For identification, will you say whether that (handing the witness Plaintiff's Exhibit No. 9) is the letter you refer to?

A. Yes, sir; it is dated July 30, 1909.

Q. That says, "We shall require in the neighborhood of 3000 tons of carbon fuel for our run."

A. Yes, sir.

Q. At that time how much bricks did you have on hand?

A. I can't remember the quantity, but we had a quantity on hand at that time. [288]

[**Testimony of Daniel W. Green, for Plaintiff.]**

DANIEL W. GREEN, a witness called on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct Examination.

My name is Daniel W. Green; age, 38, and I reside in the city of Los Angeles. My occupation is that of Sealer of Weights and Measures for the city of Los Angeles. From the first to the thirtieth of March, 1910, I tested each morning the scales used by the Los Angeles Gas and Electric Corporation to weigh the carbon furnished by it to the generator set of the Western Gas Construction Company during said period, and found that at all times said scales were correct.

(Testimony of Daniel W. Green.)

I found that the scale was capable of weighing within thirty-five pounds of correct for each ton weight; in other words, that it took 2035 pounds of any commodity to weigh a ton on that scale on the first day of March. The scale was adjusted by us each morning at 8:00 o'clock. None of the representatives of the defendant company were present when these adjustments were made. It was necessary to adjust it every morning, and before we arrived there the gas company would have whatever accumulation of dirt or mud that had accumulated during the night removed during the night, so that it required a new adjustment of the lever or beam on which the weights were registered. [289]

[**Testimony of John Robinson, for Plaintiff.]**

JOHN ROBINSON, a witness called on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct Examination.

My name is John Robinson; age, 47, and I reside in the city of Los Angeles. My occupation is chief gas-maker for the Los Angeles Gas and Electric Corporation. I have held that position for the last five years. From March 10th to March 30th, 1910, I had charge of reading the candle-power of the gas produced during said period by the apparatus of the Western Gas Construction Company. The candle-power of the gas produced by said apparatus during said period was taken every two hours during the day and night, and at the end of each 24 hours the average candle-power produced for the

(Testimony of John Robinson.)

preceding 24 hours was computed. The average candle-power of the gas produced by said apparatus on March 10th, 1910, was 17.1; March 11th, 18.5; March 12th, 19.3; March 13th, 19; March, 14th, 19.2; March 15th the apparatus was shut down; March 16th the apparatus was shut down; March 17th, 17.9; March 18th, 19.3; March 19th, 18.9; March 20th, 18.9; March 21st, 19.3; March 22d, 19.5; March 23d, 19.9; March 24th, 19.7; March 25th, 18.4; March 26th, 19.2; March 27th, 20.2; March 28th, 19.6; and March 29th, 19. [290]

Candle-Power Readings of Water-Gas Produced from March 10th to 30th, 1910.

March.

	7AM	9	11	1PM	3	4	6	8	10	12	2	4AM
10	14	17	16.8	16.7	17.6	16	17	17	16	18.3	17.5	19
11	18.5	16	18	18	19.6	19.4	19	18.5	18	18.6	19	19.8
12	19.8	18.6	17.4	19	19.8	19.6	19	19.6	19.8	19.5	19.5	20
13	19.6	18.8	17.6	19.7	19.2	18.6	18.8	18.8	19	18.2	19	NR
14	19.2	NR										
15	NR											
16	17	NR										
17	14.5	15.4	16	17.3	17.5	18.5	18.3	18	19	19.5	19.2	19.5
18	19.5	19	20	19.2	19.4	19.5	19.6	19.2	18.2	19.3	19.5	19.6
19	19.4	19.2	19.6	17.6	18	19.5	19.5	18	18	19	19.2	NR
20	19.4	19.7	17.6	18	NR	18.7	19	19	18	19.6	19.6	19.6
21	19	19.6	19.8	18.6	19.6	18.5	19	18.5	19.5	20.5	19.6	NR
22	19.7	19.8	18.7	19.3	19.8	19.2	18.5	19.6	19.5	19.6	20.6	20.5
23	19.5	19.8	19.7	19.5	19.4	21	21	19.4	20.5	19.5	19.5	NR
24	20	19.8	19.4	19.7	19.7	20	19.5	19.5	19.8	19.5	19.5	NR
25	20.4	18.4	17.3	18	19.8	17	18	16.5	18	19.5	NR	19
26	18.5	17.2	18.1	19.3	19.8	20.2	19.5	19.3	19.3	19.6	19.6	20
27	17.8	17.8	19.5	20.6	19.8	20	22	22	21	NR	21.5	NR
28	21	20	20	19	19.4	19.6	19.6	19.2	19.5	19.5	19.5	19.3
29	20	20.2	20.4	19.4	19.2	19.4	17.5	17.5	18.2	19.2	17.2	19.6

(Note: The letters "NR" appearing in the foregoing table mean that at that hour no reading of the candle-power of the gas produced was taken.)

(Testimony of John Robinson.)

(Note: The letters "NR" appearing in the foregoing table mean that at that hour no reading of the candle-power of the gas produced was taken.)

(Witness continuing:) The foregoing readings were all made on what is known as a Sugg photometer, which is used to ascertain the candle-power of oil-gas as well as water-gas.

I also took part in weighing the material supplied to the generator. The wagon was weighed each morning and then the weights of the load together with wagon were determined and noted down upon a slip of paper and the weight of the wagon deducted. There was more or less accumulation of mud upon the wagons during that time and we did not clean that off every morning before weighing the wagon.

[291]

[Testimony of George Loveday, for Plaintiff.]

GEORGE LOVEDAY, a witness called on behalf of the plaintiff being first duly sworn, testified as follows:

Direct Examination.

My age is 48. My occupation is engineer in the employ of the Los Angeles Gas and Electric Corporation. During the month of March, 1910, and especially between March 10th and March 30th, 1910, I took the thermometer readings of the temperature of the gas produced by the water-gas set of the Western Gas Construction Company during said period. This temperature was taken every hour of the day by myself and my assistant and a permanent entry thereof made on the record-book kept for said

(Testimony of George Loveday.)

purpose. The average temperature of the gas produced in said apparatus for the 24 hours subsequent to 6 A. M. of March 10th, 1910, was 77 degrees Fahrenheit; March 11th, 77 degrees; March 12th, 76 degrees; March 13th, 75 degrees; no temperatures were taken while the machine was shut down on March 14th, 15th and 16th. On March 17th the average temperature was 74 degrees; March 18th, 75 degrees; March 19th, 75 degrees; March 20th, 75 degrees; March 21st, 76 degrees; March 22d, 74 degrees; March 23d, 72 degrees; March 24th, 72 degrees; March 25th, 72 degrees; March 26th, 70 degrees; March 27th, 65 degrees; March 28th, 67 degrees; and March 29th, 68 degrees. [292]

[**Testimony of F. F. Reink, for Plaintiff.]**

F. F. REINK, called on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct Examination.

I reside in the City of Los Angeles and am employed by the Los Angeles Gas and Electric Corporation at its gas plant. In March, 1910, I was employed as a helper in handling the lamp-black fuel used by the Western Gas Construction Company in its water-gas apparatus at the plant of the Los Angeles Gas and Electric Company. The form of the carbon or lamp-black used in the generator of said apparatus was brick form about two inches thick, four inches wide and about eight inches long, that is, about the size of an ordinary building brick. This lamp-black was hauled to the base of the fuel chute

(Testimony of F. F. Reink.)

of the generator of the Western Gas Construction Company in wagons. When this form arrived there it was still in the form of bricks. The fine particles of carbon which broke from these bricks as the same would slide down the chute into the generator was called waste. This waste fell through perforations in the bottom of the chute. These perforations were about two inches wide and about two feet long.

Cross-examination.

I cannot say that I noticed any difference between the carbon fuel brought there during the various nights or as to whether it crumbled up or not. The carbon all appeared to me to be about the same all the way through. Sometimes when we dumped the carbon into the fuel pit some of it lodged and you had to take a pole or something to punch it down, and possibly one or two of the bricks would thereby be broken. This fuel was dumped at the base of the chute [293] from the wagon by taking off the side-boards and some of the bottom boards from the wagon. I do not believe we ever had to shovel the fuel out of the wagons into the bin, although sometimes we threw the fuel out by hand into the bucket. The way in which record was kept of the weights of fuel was this: As the fuel was delivered at the set, the slip containing the weight was handed to the man in charge of raising it to the platform to be dumped into the generator, and he tabulated the weights on a card kept for that purpose. At the end of each day an estimate was made of the amount still on the platform and that amount was put down and carried

(Testimony of F. F. Reink.)

over to the next day and this was repeated each day throughout the test. [249]

[**Testimony of H. Contard, for Plaintiff.]**

H. CONTARD, a witness called on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct Examination.

I reside in the city of Los Angeles, and am employed by the Los Angeles Gas and Electric Corporation. I was working for them during the last test of the water-gas set of the Western Gas Construction Company during March, 1910. I was engaged in handling the carbon fuel at the base of the fuel chute.

“Q. What shape was this fuel in that came in the wagon? What was it like—the fuel that came in these wagons? What kind of stuff is it?

A. It was good stuff—good brick—good dry brick, all right.

Q. Were they whole bricks or broken bricks?

A. Some were broke all to pieces, but very few. Most of it was all full brick.

Q. Do you know anything about the waste—the weighing of the waste?

A. They weighed the waste every time they fire up. They clean up the floor and shovel it on the chute, and they shovel that waste down on the car and run it on the scale and bring back the check—the weight slip.

Cross-examination.

“Q. You said the fuel was good material when it was delivered to you at the bottom of the chute?

(Testimony of H. Contard.)

A. Yes, sir, it was good material; it was in good shape when it came on the wagon. When we threw it down two or [295] three times it broke up.

Q. These wagons were driven over a pit, were they not, and the brick dropped down into the pit?

A. Yes, over a hole four or five feet deep, and they took off the boards of the wagon and it dropped down.

Q. A good many of the brick broke up when they fell down?

A. Yes, sir. They dropped down. It was pretty deep, and some broke up.

Q. And some days it would be worse than others?

A. Oh, I don't know. It looked to me pretty much the same. [296]

[**Testimony of Robert J. Fargher, for Plaintiff.]**

ROBERT J. FARGHER, a witness called and sworn on behalf of plaintiff, testified as follows:

Direct Examination.

I reside in the city of Los Angeles, and am employed as day foreman of the Los Angeles Gas and Electric Corporation, and was in their employ during the month of March, 1910. From March 10th to March 30th, 1910, I took the readings from the station meter, showing the gross amount of gas produced by the Western Gas and Construction Company in their water-gas apparatus during said period. Only the gas from the water-gas set of the Western Gas Construction Company passed through this meter during said time, and the readings of the

(Testimony of Robert J. Fargher.)

meter were taken at 6 A. M. each morning during said test; and all of the gas produced by said water-gas set during said period passed through this meter. Said meter accurately measured the gas which passed through it, and the measurements of said gas was indicated on said meter by a dial expressed in terms of 1,000 feet. At 6 A. M. on March 10th, 1910, the dial on said meter read 2,401,514; on March 11, 2,404,240; which would indicate that 2,725,000 cubic feet of gas passed through that meter during the said twenty-four hours. The reading of the dial on said meter at 6 A. M. on March 12th was 2,406,703; March 13th, 2,408,986; March 14th, 2,410,922; March 15th, 2,411,039; March 16th, 2,411,039; March 17th, 2,411,086; March 18th, 2,413,157; March 19th, 2,415,281; March 20th, 2,417,348; March 21st, 2,419,508; March 22d, 2,421,725; March 23d, 2,423,823; March 24th, 2,425,842; March 25th, 2,427,864; March 26th, 2,429,834; March 27th, 2,431,761; March 28th, 2,433,559; March 29th, 2,435,186; and March 30th, 2,436,484. [297]

Cross-examination.

The water-gas produced by the set of the Western Gas Construction Company went into a separate holder where there was no other gas. This holder was situated about 200 feet from the machine. The meter was about 50 feet from the holder. All my reports as to the meter readings were turned into the Chief Clerk, Mr. Bartlett. [298]

[**Testimony of A. R. Lynde, for Plaintiff.]**

A. R. LYNDE, called on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct Examination.

I am in the employ of the Los Angeles Gas and Electric Corporation as engineer. I was so employed during the entire month of March, 1910, at which time I observed the temperatures of the gas produced by the water-gas set of the Western Gas Construction Company during the said month of March, 1910. I also took the pressure reading. The temperature of the gas produced was taken immediately after it left the meter. The pressure of the gas was taken just before it entered the meter. The pressure was taken by a Bristol Self-recording gauge. This instrument showed that on the 10th day of March, 1910, the average pressure of the gas as it entered the meter was 15.11, on March 11th, 14.9; March 12th, 15.44; March 13th, 15.27; March 14th, 15.27; March 17th, 15.02; March 18th, 15.5; March 19th, 16.07; March 20th, 15.3; March 21st, 15.3; March 22d, 14.6; March 23d, 15.2; March 24th, 15.3; March 25th, 15.33; March 26th, 16.6; March 27th, 16.54; March 28th, 14.8; March 29th, 15.1. The said Bristol Self-recording gauge correctly recorded the pressure of said gas.

[**Testimony of Joe Quinn, for Plaintiff.]**

JOE QUINN, a witness called for plaintiff, being first duly sworn, testified as follows:

Direct Examination.

I was employed by the Los Angeles Gas and Electric Corporation as teamster, at its gas works, during the month of March, 1910. I hauled the carbon brick fuel to the water-gas set of the Western Gas Construction Company, during the operation of said set in the month of March, 1910. This fuel was in the form of dry brick.

Cross-examination.

I hauled this brick from piles in the Center Street yard. The bricks there were stacked in piles or rows. These brick were dried by fires which were built around them sometime before the test commenced. The bricks were piled so that the air could go through them. They did not have a fire built around that part of the bricks which was in the Center Street yards. During these twenty days there was no fire around the bricks. They had all been dried before the test commenced.

Q. Did you handle the bricks carefully when you put them on the wagon.

A. Yes, sir. They were piled in rows and we had a fork with very fine tines, and we laid them carefully on the wagon.

Q. And if you hadn't they would have broken up?

A. Of course, the rougher you would handle them the more they would break up, but we handled them carefully. [300]

(Testimony of Joe Quinn.)

Q. Do you recall handling any hot brick there?

A. No.

Q. Don't you remember sometimes when you picked them out of the kiln or out of the pile when they were rather warm? A. No, sir.

Q. At no time whatever?

A. No, sir, no time during that last test.

Q. What happened when they fell down into the pit? Were they broken up any?

A. I can't say they were broken up very badly. We would unload our wagon and go on about our business.

Q. Do you know Mr. White, this gentleman that sits here? A. Yes, sir.

Q. Did you talk with him around there about the character of the fuel at any time?

A. Yes. He told me that the thing was going on pretty good.

Q. He said the test was going along pretty good?

A. Yes, sir.

Q. Never said anything about the character of the material you were hauling over there? A. No.

Q. Did he talk about the way you were handling the stuff and telling you to be careful?

A. We were always careful.

Q. I ask you if Mr. White did not comment on it?

A. I don't remember his telling me anything about it.

Redirect Examination.

Q. Did you haul brick from these piles indiscriminately just as you happened to please or choose, or

(Testimony of Joe Quinn.)

was there anything [301] that determined your selection of the piles from which to haul the brick?

A. We hauled from those piles upon which the foreman, Mr. Creighton, had placed his okay mark.
[302]

[**Testimony of W. S. Mahard, for Plaintiff.**]

W. S. MAHARD, a witness produced and sworn on behalf of plaintiff, testified as follows:

Direct Examination.

(By Mr. GOUDGE.)

Q. Where do you reside?

A. 412 Bell Street. Age, 46.

Q. What is your business?

A. At present I am inspector in the Health Department.

Q. What was your business or occupation in March, 1910?

A. I was employed by the Los Angeles Gas and Electric Company as assistant chemist.

Q. On any particular or specific work?

A. Yes, the testing of the fuels used in the water-gas generator.

Q. To which reference has been made in this suit?

A. Yes, sir.

Q. You have been present and heard the testimony? A. Yes, sir.

Q. Referring to the test of the operations of this machine in March, 1910, state what you did with reference to testing the fuel that was furnished for use as fuel in that gas set from March 10th to 30th, 1910.

(Testimony of W. S. Mahard.)

A. Well, when I first started with the company it was probably three days previous to March 1st. There was a large pile of bricks that had been air dried—lying in the yard across [303] from the water-gas machine. I went over that pile very thoroughly and sampled it and made analyses, and I found that the top layers and the side layers of brick showed ten per cent and less of moisture. Down in the interior these bricks, a great many of them, contained more than ten per cent moisture. And then the company took measures to dry those bricks and bring the moisture down to less than ten per cent, and that was done, and I made all the analyses and took all the samples. I took every sample myself and made every analysis myself of every pound of fuel used in this test from the beginning to the end.

Q. Starting March 10 or immediately prior to March 10, you made analyses and tests of the water content of the fuel that was furnished to this set?

A. Yes, sir.

Q. How often and in what manner did you indicate, if at all, any particular place or piles of fuel that were above or below ten per cent moisture? Did you make any record of it or did you notify anyone?

A. Why, yes. For instance the bricks were being dried, and I made assays every day of the various piles as they were being dried, and such piles—they were built in the form of kilns—and as the piles or bricks assayed less than ten per cent moisture, that pile was marked "O.K." by the direction of the fore-

(Testimony of W. S. Mahard.)

man, Mr. Creighton, and no further tests were made on that pile, and the tests were continued till all of the fuel to be used in the test assayed less than ten per cent moisture.

Q. These tests that you speak of that were made daily were made of the piles of fuel that were situated where?

A. They were situated in the briquet yard directly across from this water-set.

Q. Did you make any further test of the moisture content [304] of the fuel used in this set, except these daily tests of the carbon in the piles that you have spoken of? If so, what?

A. Well, I made tests of the brick as they came from the machine to show the percentage of moisture in the bricks as they came from the machine, and the analyses of the briquets in various stages of drying.

Q. After these piles were O. K.'d, I understand that when you found a pile containing less than ten per cent moisture, that pile was O. K.'d?

A. Yes, sir; although the drying was kept on for some time, to be sure.

Q. After that, was any further subsequent test made? A. Yes, sir.

Q. If so, state what it was.

A. Two bricks were taken from each wagon-load delivered at the machine, and each brick was split in two at the center, and particles were broken off from the inside of each brick. Those samples were put in a large tin or galvanized iron can, and at the end of the day—the end of the run—they were taken out and

(Testimony of W. S. Mahard.)

crushed up and mixed together and pounded up, and an average sample taken of the whole lot in order to determine what the average analysis of that sample was.

Q. Did you make that determination, too?

A. Yes, sir.

Q. So that I understand that you tested the brick in the piles and the piles were O. K.'d, and from the piles the brick was hauled to the generator, and from each load hauled to the generator a couple of bricks were taken and a portion of the bricks taken and put in a can and at the end of the run you again tested the can?

A. Yes, sir. The daily assays were made.

Q. And in that daily assay of the samples taken, how much [305] of the brick was tested and showed over ten per cent moisture?

A. None whatever.

Q. And how much of the brick in the piles that were O. K'd showed over ten per cent moisture?

A. None of them at all.

Mr. GOUDGE.—That is all.

Cross-examination.

(By Mr. CHAPMAN.)

Q. You mean after the drying process?

A. Yes, sir.

Q. Are you still employed by the gas company?

A. No, sir.

Q. Are you related to any of the officers of the company? A. Yes, sir.

Q. To whom?

(Testimony of W. S. Mahard.)

A. Mr. Luckenbach, the manager of construction.

Q. (By the COURT.) What relation?

A. My brother-in-law.

Q. (By Mr. CHAPMAN.) Do I understand you to say that besides the analyses of these bricks that were in these kilns that you also made analyses of the brick as they came from the machine?

A. Yes, I did.

Q. I mean by that the brick-making machine.

A. Well, that was previous to the general test. Yes. I have made independent analyses of the green brick.

Q. Both for moisture and other contents?

A. Well, only for moisture.

Q. You said something also about making tests during the various stages of drying.

A. Yes, sir. [306]

Q. What were the various stages of drying?

A. The various stages of drying. The drying consisted, as I stated previously—the bricks were piled in the form of a kiln. The fires were placed inside and the drying process begun. Samples were taken every day and I made my assays every day of those piles continuously until the moisture content assayed below 10 per cent. On some of those kilns I made as high as nine or ten assays before they were below ten per cent moisture.

Q. Was there any drying of the material before the bricking?

Mr. GOUDGE.—I object to that as not cross-examination.

(Testimony of W. S. Mahard.)

The COURT.—The objection is overruled.

A. I don't know.

Q. (By Mr. CHAPMAN.) Do you know what the percentage of moisture was in the material at the time the material was put into the bricking machine?

A. Why the content of moisture is variable. In some bricks it would be—well, it would be variable. You couldn't set any specific amount of moisture.

Q. Couldn't you give us an idea of the general run of moisture of the material just at the time or just before the time it was put into the bricking machine?

A. No, sir, I could not. I do not remember.

Q. Did you ever make any analyses of it?

A. I have, yes, sir.

Q. What does it show?

A. I don't remember.

Q. Did you keep any record of it?

A. I presume I did. I don't know whether I did or not.

Q. Have you any record in that little book?

A. I have a record in here, yes, but I haven't looked at it yet. [307]

Q. Please examine it and tell me what the result of your analysis was. What is the amount approximately and in the general run of it? Confine your answer to the investigations that you made to the test. Did you examine this material before it was bricked and ascertain anything about the moisture before it went into the bricking machine?

A. No, sir.

(Testimony of W. S. Mahard.)

Q. The material was handled in the same way before the test as it was during the test, wasn't it?

A. What do you mean?

Q. Well, it was put in the machine before the test while you were there and when you made your examinations, approximately in the same condition as it was during the test? I will withdraw that. When did you examine any of this material as to its moisture before it was bricked?

A. Well, I think—in fact, I know I made some determination previous to the beginning of the test.

Q. Can you give us the general result?

A. No, I cannot.

Q. Well, approximate it. You know whether it was fifty or sixty or seventy per cent?

A. No, I can't state. I don't remember.

Q. Between what limits of moisture?

A. I cannot state.

Q. Do you know whether it was more than fifty?

A. It was over ten per cent.

Q. Do you know whether it was more than fifty per cent or not?

A. I don't recollect. I don't pretend to remember all those figures.

Q. You have no memorandum with you?

A. No, sir. [308]

Q. After the bricks came out of the press, how long were they allowed to stand before the external fire was applied to them?

A. Do you refer to the bricks used in this test?

Q. Yes, sir. A. I don't know.

(Testimony of W. S. Mahard.)

Q. You were not there at that time and know nothing about that?

A. I don't know anything about it at all.

Q. Isn't it a fact, Mr. Mahard, that they were bricking this material all the time and drying it and preparing it for this generator all the time you were there?

A. I don't know. I can't state. But I think they were.

Q. And after they bricked it up, what did they do with it?

A. It was built in kilns and dried. But whether that particular brick was used in the test or not I don't know.

Q. Did you make any analysis of any bricks immediately after they came out of the machine—green—as you have described them?

A. I think I have, but it was preliminary to this official test.

Q. Give us the general result of what you found.

A. I don't remember it. I told you that before.

Q. Well, any result that you got from the examination of it.

A. I don't remember. It was over ten per cent moisture.

Q. How much over? A. I don't remember.

Q. How is it that you recall so distinctly about the extent of moisture in these kiln bricks and have no idea—not even a general idea—as to the result of your other determination?

A. That is a very hard question to answer. I can-

(Testimony of W. S. Mahard.)

not [309] state how I can remember anything; neither can you.

Q. That may be so. You mean to say—did you make these tests of the green brick and the material before it was bricked just for pleasure, or did you have some object in mind?

A. Was I doing it for pleasure?

Q. Yes.

A. I don't suppose I was. It was simply to inform myself.

Q. But that information that you did get has entirely passed out of your mind?

A. Why, it has, **sure**.

Q. How do you make these determinations; by weight? A. The same as any other chemist would.

Q. That is perhaps very enlightening to a chemist.

A. You asked me how I made it. If you want me to go into the details, I will be pleased to give them to you.

Q. Answer the question. How do you make it?

A. The samples as I stated, were ground and prepared for the test in the laboratory. Two grammes of the sample were taken and weighed on the balance in the laboratory, and placed in a porcelain dish, and the sample placed in an oven that was kept at a temperature of 105 degrees centigrade for one hour. At the end of that period the dish was taken out of the oven and placed in a drying apparatus and cooled down to normal temperature. It was then weighed again and the loss in weight in grammes or fractions of a gramme divided by the weight taken

(Testimony of W. S. Mahard.)

and multiplied by one hundred would be the per cent of moisture. That would be the loss in weight.

Q. You made the statement during the course of your direct examination that every pound that went into the generator was analyzed by you. Do you mean that?

A. No, I won't state that. You probably misunderstood the purport of my answer. [310]

Q. You simply meant that you took a sample every now and then? A. I took a sample, yes, sir.

Q. The outside layers of these kilns—

A. No, sir, the inside of the brick. I testified to that.

Q. The outside layers of the kiln, I believe you said, had been air dried, and were practically—I believe you said in all cases were less than ten per cent moisture? A. I said no such thing.

Q. What do you say about the outside layers?

A. I was speaking of the piles of bricks in the yard.

Q. What did you say about the outside layers?

A. I said the outside layers were drier than the inside layers.

Q. What percentage of moisture did you find in the outside layers?

A. In the pile of bricks that had been laying in the yard, according to my information, for some time, the outside layers were low in moisture. And down in the interior of the piles they were high in moisture. That is in comparison.

Q. So that the outside layers were removed and

(Testimony of W. S. Mahard.)

the inside layers subjected to fire drying?

A. Yes, sir.

Q. Was that drying done under your supervision?

A. It was done under the supervision of the foreman, Mr. Creighton.

Q. You indicated what portions of the brick needed further drying, and he provided for it?

A. Yes, sir.

Q. Can you state approximately, in a general way, what the general run of moisture was in the interior bricks before they were kiln-dried? [311]

A. I can by referring to this report.

The COURT.—You seem to distinguish between different piles of brick.

A. Your Honor, I said that when I first began the test, there was an immense pile of briquets lying in the yard across from where this machine was in operation, that had been lying there piled up for a considerable period of time. After I first started in at this work, I made analyses of this pile to get an approximate idea how the assays would run on this pile of brick, to see if the assays of moisture in that pile was ten per cent or whether it was greater. I took samples—

Q. (By the COURT.) Where were the kilns with relation to this—

A. The kilns had not been built at that time.

Q. Was this pile of brick all used in the test?

A. Well, that immense pile was used in these tests.

The COURT.—Very well. Now go on, Mr. Chapman.

(Testimony of W. S. Mahard.)

Q. (By Mr. CHAPMAN.) And was there any other besides that immense pile that you referred to used in this test?

A. I am not sure, but I think so.

Q. Now, can you answer the question in a general way? What was the water content of the interior bricks before being kiln-dried?

A. Do you mean the interior of this pile?

Q. Yes, sir.

A. I can state by referring to the report. Referring to the date of February 26, 1910, the first layer on No. 1 pile marked section 1 and 2, assayed 4.7 per cent moisture. Layer No. 2, which was deeper in the pile, ran eight and a half per cent. Layer No. 3 ran 10.5 per cent. Layer No. 5 ran 10.2 per cent. Then on the same day on Section 3, layer [312] No. 1, 4.7 per cent. The second layer, 11 per cent. Layer No. 3, 15.75 per cent. Layer No. 5, 17.5 per cent—that is practically all of the analyses I made on those piles.

Q. May we see your memorandum, please? Is this all that relates to this test? A. Yes, sir.

Q. These figures in the center are moisture?

A. The figures I was reading from are marked percentage.

Q. One or two of them ran as high as twenty-two or twenty-three per cent? A. Yes, sir.

Q. And down as low as three per cent?

A. Yes, sir.

Q. Do you recall that you had some rain storms during the test?

(Testimony of W. S. Mahard.)

A. Yes, they had some slight sprinkles—some light rains during the test.

Q. And that necessitated the application of additional fire?

A. Yes, sir; but the piles were covered during rains with tarpaulins and with sheet iron. The piles were carefully guarded from the rains by tarpaulins and by iron sheeting.

Q. Do you know the specific gravity of this lamp-black?

A. No, sir, I never made a determination of the specific gravity.

Q. Do you ever weigh the bricks?

A. No, I never did.

Q. Could you give us any idea of the comparative weight of the bricks after they were dried and before they were dried? A. No, sir, I cannot.

Mr. CHAPMAN.—That is all. [313]

[**Testimony of F. S. Wade, for Plaintiff.**]

F. S. WADE, called on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct Examination.

(By Mr. GOUDGE.)

Q. State your name, age and place of residence.

A. F. S. Wade; 127 East Wilson Avenue, Hollywood, Hollywood Station, Los Angeles.

Q. What is your business or occupation?

A. Chemist, Los Angeles Gas and Electric Corporation.

Q. How long have you held that position?

(Testimony of F. S. Wade.)

A. Slightly over six years.

Q. Have you had any technical education as a chemist? If so, what?

A. I am a graduate of the University of Southern California. My major course at that college was in chemistry.

Q. What kind of chemical work have you done for the Los Angeles Gas and Electric Corporation or the Los Angeles Gas and Electric Company during your six years' connection with those corporations?

A. I have done general chemical analysis in connection with oil-gas and water-gas manufacture,—a great variety of chemical work. It would take a considerable time to enumerate all of it.

Q. And during that time have you devoted any time or attention to the study of organic chemistry or the chemistry of the hydrocarbons?

A. I have attempted to read chemical journals as they have been issued.

Q. During the period from March 10, 1910, to March 30, 1910, did you make any observation of the gas produced by The Western Gas Construction Company's water-gas set that was being [314] tested at this time?

A. I made quite a number of tests of different natures.

Q. Do you know what the practice in the gas-making business is with reference to the standard of measurement of gas, referring particularly to the standard, if any standard exists, of pressure and temperature at which gas is commonly measured in

(Testimony of F. S. Wade.)

the trade? Please say yes or no to that.

A. Yes.

Q. State what is the standard temperature and barometric pressure or temperature and pressure at which commercial gas is probably and usually measured according to the custom of the trade, and art of gas manufacture, in this country.

A. The standard temperature for the measurement of gas is 60 degrees Fahrenheit, and the standard pressure is 30 inches of mercury.

Q. By the latter I understand you to mean the pressure equivalent to an atmospheric pressure when the barometer would read 30?

A. When the barometer would read 30 inches, yes, sir.

Q. Did you make any determination or observation, or were any determinations or observations made under your direction of the measurement of the gas produced by the water-gas set installed by The Western Gas Construction Company and being operated and tested in the Los Angeles Gas and Electric Corporation's works in the period from March 10th to 30th, 1910?

A. I made observations of the barometric pressure. That is, so far as I made observations personally.

Q. You say you made observations of the barometric pressure?

A. The barometric pressure of the atmosphere.

Q. How often during that time?

A. Once a day. [315]

(Testimony of F. S. Wade.)

Q. Did you make any record of it or have any record made of it?

A. I have no definite record of the readings that I actually made for the correction of this gas volume.

Q. I am directing your attention now to the barometric pressure of the atmosphere during that period. Did you make or have any records made?

A. There was a record made of the barometric pressure in the laboratory every morning at 8 o'clock.

Q. During that period?

A. Yes, sir, with the exception of Sundays.

Q. I will ask you if you can produce any such record that was made by you or under your direction or control?

A. Yes, sir. The regular gas announcers sheet shows in the last item the barometric pressure as read in the laboratory every day at 8 o'clock.

Q. On each of the days mentioned on the sheets?

A. On each of the days mentioned on the sheets, yes, sir.

Q. Will you from this record read the barometric pressure on each of the days recorded on these sheets, giving the date and the barometric reading for that day?

A. March 10th, 29.59; March 11, 29.62; March 12, 29.65; March 14, 29.73; March 15, 29.70; March 16, 29.70; March 17, 29.62; March 18, 29.53; March 19, 29.64; March 21, 29.55; March 22, 29.58; March 23, 29.67; March 24, 29.65; March 25, 29.59; March 26,

(Testimony of F. S. Wade.)

29.67; March 28, 29.71; March 29, 29.75; March 30,
29.77.

Q. Now, Mr. Wade, does the volume of the gas, particularly the water-gas produced by such a set as this referred to in this action, vary with the pressure to which it is subjected?

A. The volume of gas varies inversely as the pressure.

Q. The greater the pressure, the less the volume of gas? [316] A. Yes, sir.

Q. Is there a constant relation between the pressure and the volume of water-gas such as produced from this water-gas set?

A. There is assumed to be.

Q. And, giving the actual pressure existing, are you able to calculate—and the volume existing—are you able to calculate the volume of that same gas at another pressure than 30 inches pressure?

A. Yes, sir.

Q. Is there any constant relation between the temperature of such a gas as this and its volume?

A. Yes, sir; any gas varies directly as the temperature.

Q. The greater the temperature, the greater the volume? A. Yes, sir.

Q. And, given any particular temperature of the gas—I am speaking of water-gas produced by this set—and its volume, are you able to calculate the volume it would have at any other given temperature? A. Yes, sir.

Q. Did you have anything to do with correcting

(Testimony of F. S. Wade.)

the measured volume by meter of the gas produced by this set and reducing the observed volume to the corrected volume that the same gas would have at a pressure equal to 30 inches of mercury and a temperature of 60 degrees Fahrenheit during the time of the test of this apparatus?

A. I applied the corrections.

Q. State what you did in that respect during the period of this test?

A. I obtained first the amount of gas made as shown by the station meters, and as it is indicated on the sheets kept by the clerk at the works. I took that volume and multiplied it [317] by the proper correction factor, which correction factor is obtained from well-known tables in gas text-books. The pressure was obtained by taking the barometric reading for the day and adding to that barometric reading a number equal to the inches of water pressure on the gas at the station meter, divided by 13.

Q. How was that water pressure of the gas at the station meter obtained?

A. The pressure on the gas at the station meter was ascertained by the Bristol recording gauge that was installed at that time. The charts were averaged by the clerk in the office, and I took the average figures. The temperature for that correction was taken from the sheet that was kept in the exhaust room and handed in to the office every morning and averaged. When I obtained that date, the temperature and pressure, I made the necessary figures

(Testimony of F. S. Wade.)

from which to obtain the correction factor. And by multiplying the volume of the gas by this correction factor I got the corrected volume of gas.

Q. And by "corrected volume of gas" you mean the volume the gas would have had if it had been measured by a pressure of 30 inches of mercury and at a temperature of 60 degrees Fahrenheit?

A. Yes, sir. [318] Mr. Bartlett, the clerk at the works who keeps the manufacturing record, furnished me with the records as to the meter readings, temperature and pressure readings.

Q. And to whom, if anyone, did you communicate the result of your correction calculation?

A. I communicated it to the stenographer of the Superintendent of Gas Manufacture, who put it on a typewritten sheet as it was kept as a regular record.

Q. In whose charge or custody was that? In whose department or whose custody was that record?

A. That was a record of the Superintendent of Gas Manufacture, as well as the office of the chief clerk and bookkeeper.

Q. What is his name?

A. Bartlett. There are various copies of this record.

Q. Did you make any examination of the moisture content of the fuel furnished to this gas-set during the period of this test?

A. I think I made a very few tests myself of the carbon furnished.

Q. For the moisture content? A. Yes, sir.

(Testimony of F. S. Wade.)

Q. Was that during the test?

A. During the test. I think I made a very few, but I had an assistant at that time who made all the regular tests. [319]

Q. Who was that? A. Mr. Mahard.

Q. Mr. Wade, reference has been made during the testimony here to an instrument called a Sugg photometer. Do you know of such an instrument in use at the gas works? A. Yes, sir.

Q. Are you familiar with the construction and use and theory of photometers generally?

A. I think so.

Q. And have you used such instruments of various kinds? A. Yes, sir.

Q. State whether or not the Sugg photometer of the type in use at the gas works during the period of March 10th to March 30th, 1910, was an instrument capable of showing and which did actually show the candle-power of gas tested by it.

A. It was an accurate instrument as it was calibrated at the time of that test.

Q. Did you have anything to do with calibrating it?

A. I originally calibrated the instrument.

Q. And you say at the time of the test it did accurately record the candle-power of the gas tested by it?

A. It is my opinion that it accurately recorded the candle-power.

Cross-examination.

I don't know that the Sugg photometer is an old,

(Testimony of F. S. Wade.)

antiquated instrument, nor do I know of any specific case of a Sugg photometer being in use. The principle upon which it operates is this: It measures the quantity of gas which is necessary to maintain a flame of a continuous size for a minute's time, and that measurement is expressed directly in candle-power on an arbitrary scale on the instrument itself. As the original unchanged instrument was constructed by Mr. Sugg he took, for [320] instance, a sixteen candle-power gas that he had ascertained to be sixteen candle-power by reference to the bar photometer, and then applied it to his instrument. He found that gas of that candle-power flowing at the rate of five cubic feet per hour through his meter, in order to sustain the flame of the gas at a certain height,—it would in the course of a minute stop at a certain point, which he marked sixteen; and then he made other calculations to fix the point where the dial indicator should stop in order to indicate different candle-power gas. The instrument was originally designed for coal-gas, and the instrument we had was originally calibrated for coal-gas and we corrected it for both water and oil-gas as well as mixed gas. We measured all three of these gases on the same instrument, and measured them by simply turning one or the other gas into the instrument and running it for a minute, and then read it, after allowing the proper time for the gas burned before to be expelled from the machine—five or ten minutes. After the proper interval of time had elapsed to allow the previous gas to be blown out,

(Testimony of F. S. Wade.)

in order to read the water-gas, we would simply turn on the cock that supplies the water-gas and read it, and then if we wanted the oil-gas read, after allowing a sufficient interval for blowing out previous gas, we would turn the cock that supplies the oil-gas and read it in the same manner; and the same is true with respect to reading mixed gas. In reading the different gases it is always necessary to adjust the lever which controls the flow of gas, so as to maintain the volume at the right height. The lever was not in the same position for the different gases. For instance, for the oil-gas we would adjust the pressure, or something, so that the top of the flame would stand at a certain level, and when we measured the water-gas we would make the same adjustment, so that the flame would stand at the same [321] level, and that is the only change of the instrument which is made for measuring these various gases. The specific gravity of water-gas is not the same as oil-gas. Approximately the oil-gas is about .35 and the water-gas is about .48 to .50.

Q. Now, I will ask you if the flame of the water-gas of the character made in this machine during this test maintains the same flame-height for a given quantity of gas flowing at a given rate?

A. I think not.

Q. What is necessary in order to make the water-gas flame conform, so far as height is concerned, to that of an oil-gas?

A. It would be necessary to increase the size of the orifice, or else increase the pressure.

(Testimony of F. S. Wade.)

Q. So that a greater quantity of gas is necessary to be supplied in order to raise the flame of the water-gas to a certain elevation than with respect to oil-gas?

A. Not a greater quantity. Didn't you say something about pressure in your first question? I may have misunderstood your question.

Q. I have reference to what was necessary to be done. Was it necessary to increase the pressure or the quantity of gas supplied?

A. I couldn't say as to the quantity of gas.

Q. You said it was necessary to increase the orifice?

A. For a given pressure it would be necessary to increase the orifice to pass the same amount of gas through the same size orifice—

Q. In order to maintain the flame at a particular elevation? A. Yes, sir.

Q. And that would necessarily take more gas—a greater orifice under the same pressure? [322]

A. A greater orifice under the same pressure would take more gas. Yes, sir.

Q. Would you maintain the pressure at the same point when you adjust this instrument by adjusting the orifice?

A. The only adjustment is made to maintain the flame at a given height. I don't know whether there is any change in the pressure or not. There may have been.

Q. In order to ascertain the candle-power, do you take any note or observation of the temperature of the gas at the time it is being supplied?

(Testimony of F. S. Wade.)

A. In making the test with the bar photometer that correction is always made. This Sugg machine is kept in the basement where the temperature is fairly constant, and I attempted to calibrate that so that no correction would be necessary, and so that the generator-men—the chief generator-man would not have to apply corrections and could enter their reading.

Q. For the pressure was there any variation made?

A. Not on this particular instrument.

Q. Wouldn't that cut some figure, Mr. Wade?

A. If there was any serious change in the pressure, it would, but the practice is the same. It is maintained the same. The gas has always been taken from the same place and under practically the same pressure, so if this instrument is calibrated to register accurately under working conditions, it should continue to register accurately under those working conditions.

Q. In other words, you assume that the pressure and temperature were so nearly constant that you could waive any correction in reading the candle-power? A. By this method, yes.

Q. In other words, Mr. Wade, isn't it a fact that this instrument is intended merely as an approximation sufficiently close for practical purposes and your general necessities? [323]

A. My experience with the instrument is that it is accurate within plus or minus of a quarter of a candle-power.

(Testimony of F. S. Wade.)

Q. Wouldn't there be considerable variation depending on the kind of gas you were reading?

A. If there was any serious change in the quality of the gas—if an entirely different gas were used, a gas to which the instrument had never been applied for testing—there might be a serious change.

Q. Isn't there a very marked difference in the chemical composition, specific gravity and all characteristics between water-gas and oil-gas?

A. There is a very considerable difference in composition between the two gases, but on account of the balancing conditions, they don't seem—a flame of constant size of water-gas seems to give off practically the same light as a flame of constant size of oil-gas.

Q. I am referring now to a Sugg photometer, and also a jet photometer. (Reading:) "Now, both these methods are subject to the same objection—namely, that they are only inferential tests, based upon the diffusive power of gas through fixed apertures, and fall to the ground if there is a variation in the relation between the specific gravity and the illuminating power of the gas to be tested. Now, that water-gas is largely used, it has been found that this relation, which was supposed to be a fixed one, is upset; and with pure water-gas or water-gas mixed with coal-gas a three-inch Argand flame at five feet per hour does not represent 16-candle gas, and a 7-inch jet flame .625 pressure does not represent 16-candle gas. The jet photometer and the illuminating power meter, therefore, are not only useless

(Testimony of F. S. Wade.)

where water-gas is made, but absolutely harmful, as their indications are unreliable." Do you think that that is a correct statement of the accuracy or lack of accuracy of that instrument? [324]

A. I am familiar with that. I would say that it is a correct statement as far as it applies to the jet photometer. As applied to the Sugg photometer I would say it is incorrect, because they are not based on the same principle. Certainly not as we use the illuminating power meter.

The COURT.—That is, the Sugg instrument?

A. Yes, sir.

Q. (By Mr. CHAPMAN.) I will ask you if this is not a correct statement of the principle upon which the Sugg photometer operates, and the manner in which it was devised. (Reading:) "In about the year 1876 Mr. Sugg introduced this instrument, which undoubtedly is a very useful one. It is based on the principle that if a 3-inch plane in a standard London Argand burner is maintained by gas passing at the rate of five feet per hour, the quality of the gas is 16-candle power, the candle power varying according to the rate at which the gas under test passes, in order to keep a certain constant flame. The principle, it will be seen, is the same as a jet photometer, for in a jet photometer the quality is proportionate to the pressure necessary to maintain a 7-inch jet, and since a given pressure is equal to a given consumption, the method is the same, though applied in the one case to an Argand burner and the other to a jet flame. It is much easier, however, to adjust the

(Testimony of F. S. Wade.)

flame in the jet than to accurately gauge the flame of an Argand burner." Is that your understanding of the principle upon which the Sugg photometer operates and the manner in which it was devised?

A. As to the manner in which it was devised, that is the only evidence I have of it. That is, the statement in that book. I presume it is correct.

Q. And what about the principle on which it is operated?

A. The principle on which it was originally operated with a 3-inch flame, that is undoubtedly correct. But the manner in [325] which we operate the instrument, we use very much less than the 3-inch flame, and the height of that flame has been determined simply by a comparison with the gas to be tested with the bar photometer. It is an arbitrary instrument and the method used is arbitrary. But it has been found by my experience to be sufficiently accurate and well within the limits of ordinary error in observing such matter.

Q. Instead of maintaining the volume at 3 inches you observe it at some other elevation less than that, but you do maintain the flame of each gas, water-gas and oil-gas, at exactly the same point in making these readings? . A. Yes, sir.

Q. You mean to say that without any adjustment of the instrument other than simply raising the quantity of gas supplying the ordinary pressure to maintain the flame of either gas to that particular point—that that instrument will measure the candle-power of water-gas with like accuracy as it measures the

(Testimony of F. S. Wade.)

oil-gas? In other words, it will measure both of them and be approximately correct?

A. It will measure both oil and water-gas as made from California petroleum—oil-gas made from California petroleum and water-gas made from California petroleum and carbon by-products—and it will measure both with approximate accuracy.

Q. To which did you calibrate your instrument when you made your comparison with the bar photometer? A. I compared it with all three gases.

Q. You mean mixed?

A. Water-gas, oil-gas and mixed gas.

Q. And you mean to say that it showed an accurate reading of all three of those gases as compared with the bar photometer, without any variation depending on the gas you were using?

A. Accurate within a quarter of a candle-power.

[326]

Q. As to each gas? A. Yes, sir.

Q. In other words, the different gases that you applied made no difference in the accuracy of the reading of the instrument as compared with the bar photometer.

A. No serious difference.

Q. Did it make any difference?

A. It may have made a difference of two or three-tenths of a candle-power, but I set the flame at a point where it is accurate within a very small error on one side or the other for all three gases.

Q. Averaged it up, is that correct?

A. Averaged it up.

(Testimony of F. S. Wade.)

Q. You have already stated, I believe, that the indicator—that the place at which it stopped is dependent on the quantity of gas that passed through the instrument in one minute? A. Yes, sir.

Q. How do you explain then, if that is the fact, why it is that the candle-power measured on the water-gas, which takes more gas in a minute to maintain a flame to the point of elevation at which you fixed it, than it would to maintain the flame of the oil-gas—

A. I don't believe I said it would take more water-gas to maintain a flame at the same height. I think I said it would take a larger orifice to pass the same amount of water-gas.

Q. I believe you said you were familiar with this book that I was using in framing two of the questions that I put to you? A. Yes, sir.

Q. A work entitled "Gas Analyst's Manual, by J. Abady," published in 1902. Is that a standard authority on the subject?

A. That book has a very wide use. It would be difficult for me to say it was a standard authority. It is widely used. [327]

Q. You mean in the profession it is made use of by the professional men widely? A. It is, yes.

Q. Is the chemical composition of oil-gas and water-gas produced there in your plant more or less uniform?

A. The chemical composition is remarkably uniform.

Q. Can you give us in a general way the average

(Testimony of F. S. Wade.)

composition—the analysis—of this water-gas?

A. In a general and approximate way.

Q. About 20-candle power gas?

A. Water-gas?

Q. Yes, sir.

A. Carbon dioxide, 8 per cent. Illuminants, 7.5 per cent; oxygen, .5 per cent; carbon monoxide, 27 per cent. I will have to arrive at the hydrogen by the difference, so as to make it a hundred. There is a methane and nitrogen, and we will add up and take the difference as hydrogen.

Q. You have 47 per cent now.

A. Methane, 17 per cent. Nitrogen 2 per cent.

Did you say I had 47?

Q. Yes, this makes 66.

A. 34 per cent hydrogen.

Q. When you say illuminants, what gas do you refer to?

A. Unsaturated hydrocarbons absorbed by bromide in analysis. It is a mixture of a considerable number of various vapors.

Q. And what would predominate?

A. I couldn't say what would predominate. The text-books assume that ethylene predominates, but I doubt very much if that is very well founded.

Q. Those are gases that are rich in carbon?

A. Yes, sir, they are rich in carbon.

Q. Now, your oil-gas? [328]

A. Carbon dioxide 2 per cent; illuminants, 4 per cent; oxygen .5 per cent; carbon monoxide, 10 per cent, methane 32 per cent; nitrogen, 1.5 per cent;

(Testimony of F. S. Wade.)

hydrogen for the difference, would make 100.

Q. I call your attention to one of the sheets that was submitted to you by counsel in connection with the barometer readings, on which appears to be the statement of the composition—what is that? Oil-gas? A. That is mixed gas.

Q. Is that a fair sample or representative of the composition of such gas?

A. No, I don't think it is. This question of getting a representative sample of mixed gas is very difficult, because at times the water-gas and oil-gas do not all come down to the storage plant at constant rates, so that the gas we get back at the laboratory is apt to have very different percentages of oil and water gas than the percentage indicated at the end of the day's run of the two makes.

Q. They vary considerable at that point?

A. The mixed gas varies in proportion of the mixture of oil-gas and water-gas—considerably.

Q. I am referring to the making of gas from oil. Is it correct to say "as a general rule, American oils give the best results when gasified at a lower heat than shale oils, and the latter at a lower heat than Russian oils. The results of the tests should be calculated to give the number of candles produced from a gallon of oil by the gas burning at the rate of one cubic foot per hour. As this rate is usually too low for oil-gas the candle-power at the actual rate of consumption is taken, and the nominal candle-power at the rate of one cubic foot per hour is arrived at by calculation. The product of the number of candles

(Testimony of F. S. Wade.)

at this rate and the volume of gas per gallon of oil, gives a figure which represents the "candles per gallon" [329] "obtained from an oil." Is that the proper way to state the candle-power efficiency, in expressing candle-power of a gas machine?

Mr. GOUDGE.—We desire to object to the question as not cross-examination, irrelevant and immaterial. The quotation counsel has read is manifestly, if your Honor was able to hear it and follow it, directed to an investigation and inquiry into the relative qualities of oil. The quotation begins by saying the way to compare the efficiency of shale oil and Russian oil is to observe what illuminating power you get from given quantities, or how much gas you get of a certain illuminating power from given quantities of these respective oils. It is an inquiry into the value of petroleum or rock oil for gas-making purposes. The machine that we are concerned with is a water-gas machine in contradistinction with an oil-gas machine which water-gas is produced from carbon and steam and not from oil. Further, this quotation does not purport to say that that is the method of ascertaining the illuminating power of gas, but it is a good method to ascertain the value of oil that you may be using, and it is irrelevant, immaterial, and also not cross-examination, because we have not directed his attention to any matter concerning the qualities of oil and the result from using different quantities of oil. And our contract also calls not for the production of any particular results from a particular quantity of oil, but it calls for a gas of a

(Testimony of F. S. Wade.)

certain illuminating power—20 candle-power—which is not dealt with in this quotation, and could not be touched by it at all.

Mr. CHAPMAN.—This quotation tells you how to express the results of a test for candle-power efficiency, and it makes no difference whether it is a test to find out the candle-power efficiency of a machine or the candle-power of gas. I simply [330] want to get at whether or not the method of expressing the efficiency in candle-power is not uniformly and customarily determined by the statement of the number of candles produced by a gallon of oil.

The COURT.—With reference to the objection that this is not cross-examination, I can hardly think of any question relating to the whole domain of chemistry touching the subject now under investigation that would not be cross-examination of an expert witness, if for no other reason, than on the ground that it was in a greater or less degree serving to reveal his competency as an expert witness. I think the objection as to the immateriality of the testimony is not well taken. The objection is overruled. I believe I said “competency.” That is not the exact word. It should be “the reliability.”

(Plaintiff excepted to the ruling of the Court.)

A. I can only answer that question in this way: That is, that I have never heard that particular phrase of “candles per gallon” applied to the result of tests of water-gas or oil-gas generators on the Pacific Coast. I am only familiar with that expression in connection with literature dealing with other gas.

(Testimony of F. S. Wade.)

Q. (By Mr. CHAPMAN.) You do find it in textbooks, though, in treating the value of gas as to candle-power—as to the value of fuel as to candle-power?

A. I have found it in such text books as you have just read from.

Q. But you mean to say that you have not heard such expressions used around your gas plant and among gas engineers with whom you have conversed?

A. I have no recollection of ever hearing that expression as applied to tests of oil-gas or water-gas generators on the Pacific Coast, or used by gas engineers that I have talked to. [331]

Q. You read the proceedings of the Pacific Coast Gas Association as reported in their journals, do you not? A. For the last two years.

Q. Don't you find that expression frequently used in those journals?

A. I have no recollection of it.

Q. You would not undertake to say, though, that it did not occur frequently?

A. I certainly would not.

Q. Isn't it a fact that this machine, for instance, if it was capable of producing and did produce 4.44 candles for each gallon of oil used, that if it had a proper sized generator it would mean that it could produce and did have a capacity to produce 20 candle-power gas?

A. I do not consider that I am in any way qualified to answer that question, and I cannot answer it.

Q. You are not a gas engineer?

(Testimony of F. S. Wade.)

A. I am not a gas engineer.

Q. You have not devoted your studies to gas-making and the kind of apparatus that they use in the production of it?

A. Only as incidental to certain investigations along chemical lines.

Q. But that is outside of the line of your professional duties?

A. That is certainly outside of the line of my duties.

Redirect Examination.

(By Mr. GOUDGE.)

Q. You say that you have read the proceedings of the Pacific Gas Association for the last two years.

A. I have read them particularly the last two years.

Q. Have you any other connection or familiarity with [332] the proceedings of the Pacific Coast Gas Association than the reading of the record?

A. I am a member of the Pacific Coast Gas Association and have attended one of their meetings.

Q. And have you there had conversations with chemists and engineers engaged in the gas business?

A. I did.

Q. On technical subjects. A. Considerable.

Q. What is the meaning of 20 candle-power gas? What is the meaning of that expression?

A. That expression means that when gas is burned at the rate of 5 cubic feet per hour in a burner, in what is a luminous flame best adapted to develop the candle-power of that gas, it will yield a light equal to

(Testimony of F. S. Wade.)

the light given by 20 standard sperm candles burning at the rate (I believe) of 120 grains of sperm per minute. I am not absolutely certain of that figure, 120 grains, but that can easily be verified.

Q. At any rate, the standard candle burning at the standard rate.

A. Consuming the standard amount of sperm per minute.

Q. And the standard rate of consumption of gas is 5 cubic feet per hour?

A. Five cubic feet per hour.

Q. In a proper burner.

A. In the best adapted burner, and the flame of a gas corrected to standard temperature and pressure —60 degrees Fahrenheit and 30 degrees of mercury pressure.

Q. Is that the common and general and accepted meaning of the expression "20 candle-power gas" in the gas trade and business in this country?

A. It is the generally accepted meaning. [333]

Q. And for how long a period has that been the meaning of that expression?

A. Well, for 50 years, I should say.

Q. I will ask you whether it is true that gas—commercial gas—made under various systems of manufacture, costs or consumes in the making varying quantities of the crude material? That is to say, a varying amount of coal in pounds or varying amount in gallons of oil per thousand cubic feet of gas produced?

A. I know in a general way from having seen

(Testimony of F. S. Wade.)

records of the plant that the amount of oil used varies considerably from day to day.

Q. Per thousand cubic feet of gas?

A. Yes, sir. I couldn't make any statement as to coal. [334]

[**Testimony of C. A. Bartlett, for Plaintiff.]**

C. A. BARTLETT, a witness called on behalf of plaintiff, being first duly sworn, testified as follows:

Direct Examination.

I am 43 years of age and reside in the city of Los Angeles. My position now is and has been for the last 6 or 7 years Chief Clerk at the gas works for the Los Angeles Gas and Electric Corporation. I remember the operation and test of the water-gas set, installed by the Western Gas Construction Company, during the month of March, 1910. I received, as Chief Clerk, the records and reports of all the men and operators connected with said set, as to the amount of lamp-black fuel and oil consumed by said set during the month of March, 1910, as well as the records and reports of the temperature, and amount of gas produced by said set; also all such records as pressure gauge and barometric readings, moisture reports, etc. I checked over all of these reports to verify them and see that the same were correct immediately upon receipt of the same. From all of these reports so received, I made permanent records in the books of the corporation kept by me for that purpose.

On March 10th, 1910, and on the following days in said month, the water-gas set of the Western Gas

(Testimony of C. A. Bartlett.)

Construction Company made the following amount of corrected water-gas: (By corrected water-gas I mean the amount of gas after making proper deductions for temperature and pressure.) On March 10th, 1910, 2,700,000 cubic feet; March 11th, 2,422,000 cubic feet; March 12th, 2,247,000 cubic feet; March 13th, 1,936,000 cubic feet; March 14th, 72,300 cubic feet; March 15th, no gas; March 16th, 107,000; March 17th, 2,039,000 cubic feet; [335] March 18th, 2,095,000 cubic feet; March 19th, 2,028,000 cubic feet; March 20th, 2,136,000 cubic feet; March 21st, 2,171,000 cubic feet; March 22d, 2,074,000 cubic feet; March 23d, 2,008,000 cubic feet; March 24th, 2,015,000 cubic feet; March 25th, 1,956,000 cubic feet; March 26th, 1,950,000 cubic feet; March 27th, 1,824,000 cubic feet; March 28th, 1,640,000 cubic feet; March 29th, 1,292,000 cubic feet.

During the said period, the following is a statement of the net amount of lamp-black fuel actually placed in the generator of said water-gas set of the Western Gas Construction Company and consumed by it during said test;

March 10th, 134,275 pounds; March 11th, 97,775 pounds; March 12th, 90,700 pounds; March 13th, 69,-350 pounds; March 14th, no fuel; March 15th, no fuel; March 16th, 8,000 pounds; March 17th, 103,200 pounds; March 18th, 84,000 pounds; March 19th, 86,-510 pounds; March 20th, 85,575 pounds; March 21st, 90,700 pounds; March 22d, 90,565 pounds; March 23d, 74,525 pounds; March 24th, 81,520 pounds; March 25th, 72,925 pounds; March 26th, 57,600 pounds; March 27th, 53,215 pounds; March 28th, 58,700 pounds; and March 29th, 34,750 pounds.

(Testimony of H. W. Burkhart.)

The above lamp-black fuel is the net lamp-black fuel after the deduction for all waste fine material which was removed, weighed and credited to the Western Gas Construction Co.

The average candle-power of the gas produced by said set from March 10th to March 29th, 1910, is as follows: March 10th, 1910, 16.9; March 11th, 18.5; March 12th, 19.3; March 13th, 18.8; March 14th, 19.2; March 15th, shut down; March 16th, 17; March 17th, 17.9; March 18th, 19.3; March 19th, 18.9; March 20th, 18.9; March 21st, 19.2; March 22d, 19.5; March 23d, 19.9; March 24th, 19.7; March 25th, 18.4; March 26th, 19.2; March 27th, 20.2; March 28th, 19.6; March 29th, 18.9. [336]

[**Testimony of H. W. Burkhart, for Plaintiff.]**

H. W. BURKHART, called on behalf of the plaintiff, having been first duly sworn, testified as follows:

Direct Examination.

(By Mr. GOUDGE.)

Q. What is your business?

A. I am superintendent of the gas department of the Southern California Edison Company.

Q. How long have you held that position?

A. About four years.

Q. Mr. Burkhart, in 1910 and subsequent to March of that year, did you make any examination of the water-gas set installed in the works of the Los Angeles Gas and Electric Corporation by the Western Gas Construction Company? A. Yes, sir.

Q. When did you do that?

A. Some time about March, I think of that year.

(Testimony of H. W. Burkhart.)

Q. Did you make any memoranda at the time of the results of your examination of this set?

A. Yes, I made some memoranda and wrote a letter to the company.

Q. I will ask you to state if this is the memorandum that you refer to? A. Yes, sir.

Q. That was made by you when?

A. That was made April 9, 1910.

Q. How soon after the examination that you speak of? A. Immediately after it, the same day.

Q. You may refer to that memorandum, if necessary, to refresh your recollection, and I will ask you to state what condition—physical condition—the apparatus was in at [337] the time you made the examination, stating what day it was, and then taking the set in its order as shown on this diagram, beginning with the beginning and running through in the way the gas passes through it, and stating the condition of the apparatus at the time of your examination.

A. The floor plates were laid loosely—uneven in appearance, and some higher than others. The generator—this apparatus here (pointing to diagram)—was leaking at this joint here,—the joint between the main generator and the head where the head fits on to the generator with a gasket under it. That gasket was leaking gas and tar. And the doors on top were also leaking here on account of the gaskets having blown out or becoming deteriorated. The arrangement for operating the various valves is not convenient. All valves should be placed in one location, so

(Testimony of H. W. Burkhart.)

as to be operated with a minimum amount of time and labor. Blast valves on this generator consist of one 24-inch Western valve, and one 20-inch Crane gate-valve, altered to a quick opening style. This latter valve is installed in a temporary and imperfect manner. Grate bars. That is, at the bottom of the generator. The grate bars of the generator are run at right angles to the larger part of the doors, making cleaning of the first difficult. Carbureter. The steel work, riveting and doors, and nozzles in the carbureter are in good condition. Oil is sprayed into this carbureter by means of eight oil sprays, arranged radically around the circumference of the shell near the top. I find that two of these sprays cannot be used on account of their being so placed that they cannot be removed on account of interfering with the superheater shell. That is, this shell here. (Pointing to diagram.) They should have been placed in a more convenient place to get at. They could not be readily removed for cleaning and inspection. [338] The checker work in the carbureter is in good condition, and the brick work piers supporting the checker work are also good. The bearing tile on top of the piers is somewhat broken up. They were somewhat broken up. The exact extent of which I was unable to determine. I simply looked through these doors and saw that there was some breakage there. The cast-iron connecting pipe between the carbureter and superheater developed a small leak which has been patched in a temporary manner by means of cement. This cement should be

(Testimony of H. W. Burkhart.)

removed and the leak permanently caulked, or otherwise repaired. That is the nozzle here. (Pointing to diagram.) Superheater. The steel shell doors, nozzles and all iron work is in good condition, but inspection of the checker-brick work shows it to be considerably crumbled on top. That is, the checker work on top of that portion of that shell. Washer, condenser and scrubber. The material and workmanship of those show no apparent defect.

Cross-examination.

(By Mr. CHAPMAN.)

I have charge of the building of gas machines for the Southern California Edison Company. My experience is not limited to what I have done for that company. I have been in the business of building machines of this character for sixteen years. This machine was not in operation at the time I saw it. It showed that it had been leaking by the stuff oozing through the joints.

Q. Could you see the apertures?

A. No, sir, but you could see the substance that had leaked through—tar and oil leaks through and leaves a mark there, and you can see it plainly. [339]

Q. Is that something that seldom occurs in a gas machine of this character? A. No, sir.

Q. Is it something of frequent occurrence?

A. Yes, sir.

Q. Easily remedied? A. Yes, sir.

Q. One leak, you say, was at the top of the generator, in those shells, that you pointed out there?

A. Yes, where the top is bolted onto the main shell.

(Testimony of H. W. Burkhart.)

Q. And you think the top was insufficiently supported or braced?

A. Well, it would indicate that by their being a marked leak, that the top was warped by pressure of gas, and that would cause the leakage. The substitution of other I-beams would cure that.

Q. There was also a leak in the passage between the carbureter and the superheater?

A. Yes, sir. That was patched.

Q. That, you say, could have been stopped by merely caulking? A. Yes, sir.

Q. Now, some of the bricks in the superheater showed evidences of crumbling? A. Yes, sir.

Q. To what extent?

A. I cannot say as to what extent. In looking in there they showed that they were broken up.

Q. Those bricks are laid loosely, one on top of the other, criss-crossed in checker fashion?

A. Yes, sir.

Q. And these bricks have just tumbled over?

A. Yes, sir. [340]

Q. Due to a jar?

A. Due to a jar or the breaking up of the brick by expansion or contraction in the operation of the machine.

Q. That could have been remedied by placing other bricks in there? A. Yes, sir.

Q. That is something that occurs frequently in an apparatus of that kind? A. Yes, sir.

Q. In other words, on the whole the apparatus could have been put in a good condition by remedying

(Testimony of H. W. Burkhart.)

these defects of which you have spoken.

A. Yes, sir.

Q. You would not consider them very serious, would you?

A. Well, they could have been remedied.

Q. Those two oil sprays that are located at inconvenient points could have been moved to some other point? A. Yes, sir.

Q. And the grate bars that were set at right angles to the doors could have been put in in some other position, could they not? A. Yes, sir.

Q. And the temporary valve that was placed there and the operation of which was convenient, could have been replaced with a permanent one and the defect remedied? A. Yes, sir.

Q. Can you give us an idea of how much of the checker brick in the superheater came down?

A. No, sir, I could not. I simply saw some of them. I could not see clear into them, because only one door was opened.

Q. Where were they located? [341]

A. I looked in this door and some of these bricks here (illustrating) were crumbled, and I looked in on top here and some of these were crumbled or broken up.

Mr. CHAPMAN.—That is all.

[Testimony of John T. Creighton, for Plaintiff.]

JOHN T. CREIGHTON, called on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct Examination.

(By Mr. GOUDGE.)

Q. What is your name? A. John T. Creighton.

Q. Where do you reside?

A. 1620 New Jersey street.

Q. What is your business or occupation?

A. Assistant superintendent of gas manufacture for the Los Angeles Gas and Electric Corporation.

Q. How long have you held that position?

A. Since the first of the year.

Q. Prior to that time what was your occupation or position?

A. General foreman of gas manufacture.

Q. Of the same corporation?

A. Of the same corporation.

Q. How long had you held that place?

A. Seven or eight years.

Q. Did you have anything to do with the operation or observation of the operation of the water-gas set installed by The Western Gas Construction Company at the gas works in 1910?

A. Yes, sir. [342]

Q. You have heard the testimony in this case, have you? A. Parts of it.

Q. Reference has been made to the carbon bricks that were furnished and used in this machine. Do you know of those bricks? A. Yes, sir.

Q. State if you know when the bricks that were

(Testimony of John T. Creighton.)

used in this gas-set during the period of the test, from March 10th, to March 30, 1910, were made.

A. You mean all the brick that was used?

Q. Yes.

A. They were made from six to eight months prior to the test.

Q. Were any of the bricks used in this test made in any shorter time prior to the beginning of the test than six months? A. I do not think there was any.

Q. Where had the bricks that were used in this test been kept from the time they were made until the time they were used in the set?

A. On the property at the corner of Center and Ramirez street.

Q. (By the COURT.) How far is that from the water-gas set?

A. Directly across the street.

Q. (By Mr. GOUDGE.) Under what conditions were the bricks kept or cared for during that time of the six months that elapsed from the time they were made till they were used?

A. In the summer time the bricks were exposed to the atmosphere on all sides.

Q. That was the summer of what year?

A. 1909.

Q. Then, coming along in the fall and winter of 1909, what was the condition of the bricks in regard to the manner of [343] keeping or caring for them?

A. They were covered over with corrugated galvanized iron and tarpaulins.

(Testimony of John T. Creighton.)

Q. What quantity of brick were kept in that place during this period—the summer and fall and winter of 1909—about?

A. Something like three thousand tons.

Q. Now, you say in the fall and winter they were covered with corrugated iron and tarpaulin?

A. Yes, sir.

Q. And continuing in time up to the date of the test and the actual use of these bricks in the test, state what, if anything else, was done with them in the matter of caring for them.

A. When the heavy rains in January, 1910, came on, the brick were piled over again. They were all segregated into small little openings about four feet wide—four walls—and a small fire set in the center to drive off the moisture that had accumulated there.

Q. Do you know whether or not in January, 1910, these bricks had accumulated any moisture, so that their condition of moisture content was different from what it had been in the summer preceding?

A. Yes, sir.

Q. What was the fact as to that?

A. The fact is that from the chemist's analysis of bricks for moisture, it proved to us that they had absorbed some moisture either from the atmosphere or from the rains previous, to what they were along in August or September of 1909.

Q. You say in January, 1910, the bricks were repiled or, at any rate, a change was made and openings left among the bricks, and fires built? [344]

A. Yes, sir.

(Testimony of John T. Creighton.)

Q. Was that in January, 1910?

A. It was about January.

Q. And from that time on what, if anything, was done with the bricks, following the history of the bricks so far as the care they had was concerned, up to the time they were actually used in the set? State how they were cared for and what was done.

A. The bricks all during those months prior to the test—some three months—were gone over regularly. Pretty near every day the samples were taken from the piles at different places, and the chemist made analysis as to the moisture of the pile of brick.

Q. Did the chemist make any reports of these tests? A. Yes, sir.

Q. And did you at the time know of these reports and what they showed?

A. Yes, sir, he made them to me.

Q. Then, when the time came for the bricks to be delivered to the set for use, what, if anything, did you have to do with the direction of the delivery of this fuel?

A. I gave orders to the men that were appointed to deliver the brick to the water-gas set, what piles they should take the bricks from.

Q. And how did you determine what piles they should be directed to take the bricks from?

A. By the report of the chemist.

Q. What condition governed the choice of the piles that the brick were to be taken from?

A. All bricks that were less than ten per cent were designated O. K. for the water-gas set.

(Testimony of John T. Creighton.)

Q. Were these piles marked in any way? [345]

A. Yes, they were marked O. K. and my initial put on them.

Q. Put on by you?

A. They were put on by me at first till I could designate the different men to follow the same routine.

Q. Do you know whether or not that course continued to be followed during the period of the test?

A. Yes, sir; after the work progressed, the chemist himself marked the different piles as they became analyzed for moisture and he found less than 10 per cent.

Q. Who was directing the operation of this water-gas set during this period from March 10th to March 30th, 1910? A. Mr. White.

Q. Mr. E. C. White? A. E. C. White.

Q. Did you have any control of the operation of this set during that period?

A. No control, only that the men were loaned to him. The men that were under my direction were loaned to him for the test.

Q. Who directed the men that worked during the test?

A. Mr. White in the day and Mr. Pederson, I believe, in the night.

Q. (By the COURT.) Who did you say directed the men?

A. Mr. White, representing the Western Gas Construction Company.

Q. That was in the daytime. What did you say about night?

(Testimony of John T. Creighton.)

A. Mr. Pederson, who also represented The Western Gas Construction Company.

The COURT.—Go on.

Q. (By Mr. GOUDGE.) Did you have any knowledge of this water-gas set prior to the time of this test in March, 1910? [346]

A. Yes, sir.

Q. Part of it had been there how long?

A. Part three years.

Q. I ask you whether at any time you ran, operated or directed the running or operating of this set or the set that was there prior to March, 1910, installed by The Western Gas Construction Company?

A. I never directed the operation of the set.

Q. Who operated this set at the times prior to March, 1910, if it was operated at all—at any time prior to March, 1910?

A. The first test was operated by a man named Mr. Shuman, a representative of the Western Gas Construction Company, and Mr. Pederson. The second test was operated by a Mr. Cleary.

Q. By whom was he employed?

A. By the Western Gas Construction Company.

Q. Was there any time when this set or the set as it existed before the alterations were made prior to the test in March, 1910—was there any time when it was used for making gas under the operation, direction or control of any employee of the Los Angeles Gas and Electric Corporation? A. No, sir.

Q. Or the Los Angeles Gas and Electric Com-

(Testimony of John T. Creighton.)

pany? A. No, sir.

Q. Now, Mr. Creighton, do you know where the photometer is that was used to measure the candle-power of the gas produced in this set during the test of March —, 1910, to March 30, 1910?

A. Yes, sir.

Q. Did you ever receive any complaint or hear of any complaint or criticism of that photometer or its use, by Mr. White or Mr. Pederson or anyone else employed by or representing [347] The Western Gas Construction Company during the period of this test? A. No, sir.

Q. Do you know whether either Mr. White or Mr. Pederson saw this photometer? A. Yes, sir.

Q. During what time?

A. During this test in March, 1910.

Q. State how you know they saw the photometer during that time. What were the circumstances, and who were there?

A. On various occasions Mr. White conversed in regard to the candle-power that his machine or the machine that he was representing was making.

Q. Do you mean by that this machine?

A. Yes, sir.

Q. At the gas works?

A. Yes, sir; and he took the candle-power on the machine himself several times.

Q. In your presence? A. Yes, sir.

Q. And what was said, if anything?

A. He commented on the standard of the candle-power of the gas that he was making, in regard to its quality of being high or low—whatever the circum-

(Testimony of John T. Creighton.)

stances happened to be at that particular time.

Q. When you say at various times, at what times are you referring to? Between what dates are you referring to?

A. Between March ——, 1910, and March 30, 1910.

Q. At any of these times did he make any criticism or complaint of the photometer or its operation?

A. No, sir.

Q. How often did you see and converse with Mr. White [348] during the period of this test—how frequently?

A. Pretty nearly every hour in the day that he was on the ground.

Q. Relate any statement Mr. White made to you during this test on any of these matters referred to in the question. Take the meter, for example.

A. The station meter, he asked where the station meter was located, and I showed him where the station meter was located. He read the statement of the dial and set it down in his notebook, and every hour he used to read the statement of the station meter, and turn to me and state, if I was in hearing, how much gas he had made the previous hour, stating that it was doing pretty good, if he was doing pretty good, and that he was doing rotten if he wasn't making very much gas.

Q. Do you know whether Mr. White paid any attention to the thermometers or the thermometer which indicated the temperature of the gas?

A. Yes, sir. His attention was called to the thermometers that were placed in the gas mains before

(Testimony of John T. Creighton.)
the gas was measured.

Q. Did he make any statement concerning them?

A. He made the assertion that the thermometer readings were very high there.

Q. Did he say that they were incorrect or that he thought they were incorrect? A. No, sir.

Q. As to the pressure gauge: This self-recording Bristol gauge. Do you know whether his attention was directed to them? A. I think it was.

Q. Did he make any statement concerning it in your presence? [349]

A. My recollection is that he asked how came so much pressure on the gas main there at the gas meter, and I told him that the pressure of the holder was partly responsible for that pressure.

Q. Did you see the bricks actually delivered to the generator during the test? A. Yes, sir.

Q. In what shape were they delivered—what condition or shape?

A. The same condition that they stood in the pile yard. All whole bricks, with the exception of whatever might happen to be broken in two halves.

Q. It has been testified that the bricks were delivered by means of wagons into a pit, and then elevated and passed through a chute into the generator. That correctly describes it, does it? A. Yes, sir.

Q. Now, did you observe the delivery of the brick occurring through those channels? A. Yes, sir.

Q. Please state what did occur and what happened to the bricks, how they were handled and elevated and delivered through the chute. And what changes

(Testimony of John T. Creighton.)

occurred in the condition of the brick during that delivery.

A. The bricks were hauled to the chute that filled the bucket or elevator that carried them to the top working floor of this generator. When the wagon was drawn over the pit or chute, there was a trap-door that was pulled aside and the wagon, which is called a stick-wagon, was dumped into this chute. This chute held about a wagon load, or approximately one ton of brick. Then the elevator bucket stood directly in front of this chute and the bricks were discharged at the [350] option of the operator into the elevator bucket, and hoisted to the floor above. At the floor above the bucket automatically tripped and discharged into the bin that set approximately some ten or twelve feet above the working floor. Connecting this bin on the working floor with the mouth of the generator was a chute.

Q. Describe that chute.

A. After they were in the bin on the working floor, the bricks slid down a chute into the generator, whenever it was necessary to put more coal into the generator. The bottom of this chute,—at first it was just a plain tight bottom. Afterwards, Mr. White had some slots cut into it to sift out whatever fine stuff might be in there.

Q. What was the size of these slots and how many were there of them, and how were they placed with respect to one another?

A. The slots were about two or three inches wide and about 18 inches long. The whole surface of the

(Testimony of John T. Creighton.)

bottom of the chute was covered with them. The chute at the beginning of the bin was about three feet in diameter, and it tapered to about 18 inches, I would judge.

Q. What was it made of,—the chute?

A. Iron.

Q. About how long was the chute?

A. The chute was about ten or twelve feet long.

Q. What kind of material sifted through these apertures or slots?

A. Whatever particles of brick broke in transmission from the wagon to the loading chute of the bucket elevator, and also whatever broke from the emptying of the bucket elevator to the storage bin, on the working floor, was sifted out through these slots. [351]

Q. What became of that material?

A. It was allowed to accumulate on the floor directly underneath the charging chute until such time as the helpers could wheel it away and discharge it down a chute to the ground floor to be reweighed back again.

Q. Was that done? Was it weighed back again?

A. Yes, sir.

The COURT.—I don't understand that. What was done with that?

A. It was allowed to accumulate on the floor until such time of the working day that the generator helpers would have time to discharge it through another chute to the ground floor, to be taken in wagons to the scales to be reweighed, and credit given on

(Testimony of John T. Creighton.)

the amount of carbon that was delivered to the generator for that day.

Q. And that didn't go into the generator at all?

A. No, sir.

Q. That was deducted from the aggregate delivered for the day in question? A. Yes, sir.

Q. Then what was done with it?

A. It was taken back to the original pile of carbon that was not bricked yet, and rebricked for other purposes than that test. Sometimes it was taken to the boilers and used as fuel in a loose form under the boilers.

Q. Not of this set? A. Not of this set, no.

Q. (By Mr. GOUDGE.). I believe you stated that all of the bricks used in this test or in this set were bricks that were about six months old?

A. Yes, sir.

Q. Have you had any experience or knowledge of the use of such bricks as were used in this test—The Western Gas Construction Company's set—for the manufacture of water-gas? [352]

A. Yes, sir.

Q. By whom and when and where?

A. The Los Angeles Gas and Electric Corporation and Company in the manufacture of water-gas at their gas works, for the past ten years.

Q. Do you know whether the station meter No. 4 through which it has been testified the gas produced by this set during the test was measured, was at the time accurate?

A. Do you refer to the station meter?

(Testimony of John T. Creighton.)

Q. Yes. A. Yes, sir.

Q. What if any test or demonstration of its accuracy was made?

A. It is the practice at the gas works to test the station meters once a month, and this station meter was tested the day previous, I think, to the day of starting the test.

Q. How is that done?

A. It is done by having a given amount or certain amount of gas in the gas-holder, that is known by the capacity of the gas-holder, and then passing that amount of gas through the station meter, and checking the same as to fast or slow, correction being made for any difference in temperature or pressure.

Q. Have you any experience in the matter of repair of water-gas generating sets and the cost of repairs of such apparatus? A. Yes, sir.

Q. How derived? In what way have you had such experience?

A. It has been my duty for the last six years to make all estimates on the repairs of water-gas machines, as well as oil-gas machines.

Q. Did you make any examination of this set after the test [353] was completed on March 30th, 1910? A. Yes, sir.

Q. Did you make any investigation as to any repairs or replacements that would be necessary to put this set in good condition? A. Yes, sir.

Q. State what the result of that investigation was. What repairs or defects you found to be necessary, and for doing so state what would be the

(Testimony of John T. Creighton.)

cost of making such repairs in order to put that set in good condition so as to be properly operated.

A. Shall I refer to those notes?

Q. Any memoranda you made yourself.

A. I have a copy of it.

Q. If this is the original memorandum you had better use it.

A. I was asked by my superintendent to make an estimate of labor and material that would be necessary to put No. 4 water-gas set in condition to operate.

Q. Is that the set installed by the Western Gas Construction Company and tested from March 10 to March 30th?

A. Yes, sir. I estimated the rebricking of the carbureter and superheater \$300 labor and \$300 material, or a total of \$600.

Q. Did you make any examination in order to ascertain whether rebricking of the carbureter and superheater was necessary? A. Yes, sir.

Q. What was the result of that examination?

A. These figures.

Q. Was it or was it not necessary?

A. It was necessary.

Q. Do you refer to the checker brick when you say brick [354] work inside of the carbureter and superheater?

A. This brick work shown in the dark and light spots in this print. That is brick work shown in the dark and light spots of this print. I believe the

(Testimony of John T. Creighton.)

dark spots represent the brick and the light spots represent space.

Q. Referring to that diagram marked "carbureter" and "superheater" respectively?

A. Yes, sir.

Q. State what the condition of the brick work in those two shells was at the time you made the examination.

A. The brick work in the carbureter, a part of it was burnt below over these pier plates. Those would have to be replaced. To replace those we would have to take all this brick out. That is, this checker brick. And in taking the checker-brick out, we have found that we can only figure on a possible ten or twenty per cent of brick to save to put back again, and the others break up in handling them out of the machine and back into it again.

Q. And in the superheater?

A. In the top of the superheater, on the northeast side, it was melted down for about five or six feet. There was a place melted approximately six or seven feet in diameter, and about five or six feet deep. It had melted below, and this hole had dropped right down, and the brick all crumbled.

Q. Then, what was necessary in order to restore the superheater to the proper condition?

A. We would have to take all the brick out, and the percentage of brick we could save there was less than the percentage we could save in the carbureter, on account of its being in a worse condition than the carbureter.

(Testimony of John T. Creighton.)

Q. State what the cost of the labor and material is to replace the brick in the carbureter and superheater. [355]

A. The total labor and material to replace the brick in the carbureter and superheater was \$600.

Q. What other repairs did you find to be necessary from your examination at that time?

A. From my knowledge of seeing the machine making gas, there was an extraordinary leak around the cover of the generator. The gasket was leaking all the way around. This top would have to be removed and a new gasket put in.

Q. What was the cost of the labor and material required for that?

A. There was another item along with the cost of that, in reference to reinforcing the top. We found that this top had bulged up in a curved line from being straight, and to reinforce this top with I-beams, and caulking the seams of some of the iron work on the sides of the generator, the labor would have cost fifty dollars and the material a hundred and fifty dollars, or a total of two hundred dollars.

Q. What else?

A. The steam piping on the generator—on this estimate of steam piping for the generator, there was only one place on the west side to admit steam. While enough steam could be admitted through this opening, it would not distribute the steam properly. This estimate was placed with the intention of distributing the steam more accurately around the bottom of the generator by placing another

(Testimony of John T. Creighton.)

steam pipe on the opposite side.

Q. Never mind that. We are not asking for any estimate on that. Proceed now and speak of any repairs, rather than changes or improvements.

A. The plates on top of the walking floor were all loose and in a dangerous sort of a condition. They were not all bolted down. [356]

Q. What is your estimate of the cost of labor and material to correct that?

A. The labor on this was \$50 and the material \$200—\$250. However, I will state that where some of these plates in this estimate—we were to do away with the cost of iron plates and place some steel plates in their place. The next item was the injector nozzles around the carbureter where this oil was sprayed in. The estimate on that would have been a change on the machine.

Q. We will omit that.

A. The next estimate has a bearing on that, and would also require the rearrangement of the steam piping to fit that particular work. The next item was a change and not a repair, although it might have been a repair. This blast valve here, they seemed to be having trouble with it, and in my recommendation I recommended a 20-inch blast valve for the top of the carbureter. The labor on that is \$100 and the material \$275, a total of \$375. The rearrangement of the grate bars to clean the fires—

Q. Never mind that. Just repairs to reinstate the machine in the condition it should be in to work properly.

(Testimony of John T. Creighton.)

A. The arrangement of the coal chutes for handling the waste. That is all.

Q. Did you find any leak in the valve or any valve that was temporarily repaired—that 20-inch Crane gate valve that was testified to by Mr. Burkhardt?

A. That was a minor change, that would have necessarily had to be changed to operate it conveniently.

Q. Since the conclusion of this test, was this Western Gas Construction Company's set operated at all? A. Since the last test?

Q. Since the test from the 10th to the 30th of March, 1910? [357] A. No, sir.

Q. By anybody? A. No, sir.

Q. What has become of the set?

A. After the test was over with, the fires were allowed to burn out; the carbon that had gathered in the carbureter was allowed to burn out slowly, and the set was gradually closed down and cooled off. It remained in that condition till about May, I think, of this year, *and when* it was taken apart, and removed to an outside lot.

Q. What, if anything, has been done, or what use, if any use, has the space that this set formerly occupied, been devoted to?

A. There has been an oil gas generator built in the exact spot that this generator stood on.

Q. Has that been operated?

A. No, sir; not quite.

Mr. GOUDGE.—I think that is all.

(Testimony of John T. Creighton.)

Cross-examination.

(By Mr. CHAPMAN.)

Q. What did you say that \$275 item was for?

A. For putting the generator in condition to make gas.

Q. What part of the generator?

A. All of it combined as a machine.

Q. That includes the reinforcement of the top and closing up of the leak? A. Yes, sir.

Q. I thought you testified to some item in addition to that. I believe you said it cost \$200 to fix up the [358] generator top. What was the \$275 item for?

A. Twenty-inch blast valve on top of the carbureter, \$275. That is the estimated cost of the material.

Q. That was a blast valve in addition to the valve that had already been put on the carbureter?

A. No, sir.

Q. It took away one that was there and put in another one? A. Yes, sir.

Q. What for?

A. The one that was there, they were having difficulty in operating it. It would get red-hot.

Q. It was not broken or out of repair?

A. Every once in a while it was.

Q. It was in the same condition that it was placed in there?

A. No, sir; it was when it was placed in, and it was burned at the last of the test.

Q. Except for the fact that it heated up, was there

(Testimony of John T. Creighton.)

anything else wrong with it?

A. No, that was enough. It burned up.

Q. So in your estimate, you decided that the wise thing to do was to remove that and put in another?

A. Yes, sir; put in a larger one at the same time.

Q. So it was really an addition to the machine—a different construction?

A. The difference between the price of that valve and the price that I estimated the value to go in its place, would have been the increased value of the repair. I mean that it would be a partial increase of value on the machine, and a partial repair.

Q. I am asking if that change that you decided to make was not a substitution of a new valve for the old one, because you [359] thought that the old valve was not the proper style or kind to be put in.

A. Yes.

Q. So it was not a repair of anything that was there that became broken or damaged or out of order, was it? A. Yes, sir.

Q. I thought you said the old valve was not out of order, but simply became hot?

A. I said on account of its becoming hot would constitute its being out of repair.

Q. It didn't get hot because it was out of repair?

A. Yes, sir.

Q. Then, there was something wrong with the valve? A. Yes, sir.

Q. Mechanically wrong? A. Yes, sir.

Q. The style of valve was all right and the size, but it had some mechanical defect in it?

(Testimony of John T. Creighton.)

A. It had some mechanical defect in it.

Q. You say the checker brick were not in good condition in the carbureter?

A. Not so much the checker brick as underneath it.

Q. If the checker brick were all right, why do you say you would have to remove all of them and replace them?

A. The foundation the checker brick stood upon was weakened by being burned down.

Q. And couldn't take down the foundation without taking out all the other brick? A. No, sir.

Q. You heard Mr. Burkhardt's testimony as to the checker brick being in good condition?

A. Partly so. [360]

Q. If I understood you correctly, at one place in your direct examination you stated that your impression was, or rather, that you thought that no brick had been delivered to this machine except those that had been manufactured anywhere from six to eight months previously. And later I think you said it was a fact that no such brick had been used except those that had been manufactured a considerable time before. Do you mean to say that you are positive that you did not use any other bricks in that test than those that had been manufactured a long time previously?

A. Not to my knowledge.

Q. Are you testifying from recollection or have you any record of what bricks were used and when they were made? A. From recollection.

(Testimony of John T. Creighton.)

Q. Isn't it a fact that you were manufacturing and drying bricks right along during the whole year 1909 and 1910?

A. We were manufacturing brick, yes, sir.

Q. And your bricking apparatus was constantly in operation? A. Partly.

Q. All except for occasional interruptions, wasn't it continuously operated? A. No, sir.

Q. What part of the time was it in operation?

A. I can't just recall, but there was sometimes as much as a month or six weeks that we did not operate it.

Q. Why didn't you use any of the bricks that you were manufacturing right along up to the time this test took place and during the test, for use in this machine?

A. These bricks that had been set aside for this machine—there was sufficient of those for the test for twenty days, and it was not necessary to use any of the bricks that were made just before the test, on this machine. [361]

Q. Why were these particular bricks set aside for this machine?

A. In the test a year previous there was a great number of bricks called for, and previous to that there was a great number of bricks called for, and these had accumulated from time to time, and they had never been used up, always waiting to know what the orders would be in regard to having fuel ready for any test that might come up on this set or machine.

(Testimony of John T. Creighton.)

Q. Mr. Pederson operated the machine for a space in August and September, 1909, didn't he?

A. I think it was in July or August, 1909.

Q. Did he use the same material—that which came from the same place? A. Partly.

Q. What other brick was supplied him?

A. Some brick that were made about that time—about the time that he was making his preliminary trials.

Q. How long is it necessary to let bricks stand in the air to reduce the moisture to 15 or 20 per cent?

A. It depends a great deal on the condition of the atmosphere. If it is very warm weather, they will dry out in three months. If not so warm, it might take longer.

Q. Isn't it your present practice to use the brick that were made up after they were air-dried, from the time they came from your drying apparatus to your bricking machine, for only a space of a few weeks?

A. Those conditions change. It is never the same, hardly.

Q. Do you recall that prior to the time that this test started and after Mr. White arrived here and while he was making the changes in the machine, that there was some discussion between yourself and himself as to what bricks were to be used? [362]

A. No, sir.

Q. Didn't you have any discussion with him about a percentage of moisture that you thought it was advisable to use for the machine?

(Testimony of John T. Creighton.)

A. He often talked about the moisture in the brick.

Q. And discussed the question whether it would be better to use bricks with more than 10 per cent moisture, rather than drier brick?

A. He often asked my opinion about it.

Q. What advice did you give him?

A. I told him I didn't know what he was wanting, but all that I knew about it was what we were using in our water-gas set.

Q. And you told him?

A. I told him what we were using in our water-gas set.

Q. And what was that?

A. Bricks with about 20 per cent moisture—25, or sometimes 30.

Q. Didn't you advise the use of the same character of bricks in this set? A. No, sir.

Q. You say that Mr. White made no complaint of the apparatus for observing the candle-power, and that you had seen him taking it himself once or twice, and that you had some conversation with him on the subject of candle-power. What was said in those conversations?

A. He would either tell me what his candle-power was, and if it was high he would make a remark that he would have to make some changes in the generator, and if it was low, he would make some other remarks along about the same line as to operating changes in the generator.

Q. What did you say to him in that regard? [363]

A. Most of the time, if he had contemplated any

(Testimony of John T. Creighton.)

changes in the operation of the generator, I would either say, "I guess so," or "Maybe that is what you will have to do," or, "I don't know," or something like that.

Q. But when his candle-power did get too high or too low, did he take up the matter with you?

A. Yes, sir.

Q. Why did he do that, if you know?

A. I don't know why he done it.

Q. Isn't it a fact that in the operation of your gas plant you aim to keep the candle-power to a certain standard? A. The commercial candle-power.

Q. A little over 19?

A. Something like that.

Q. And if Mr. White's candle-power or the candle-power of Mr. White's machine got beyond that—beyond the commercial standard that you were aiming to carry—did you remind him of the fact?

Mr. GOUDGE.—Objected to as irrelevant, immaterial and not cross-examination; and also an attempt to contradict the provisions of the written contract before the court.

The COURT.—What is the object of this?

Mr. CHAPMAN.—The matter of the conversations about candle-power was brought out by counsel himself in the direct examination. We certainly have a right to ascertain something about what the conversations were and how they came about.

The COURT.—What is the purpose of the testimony?

Mr. CHAPMAN.—The purpose of it is—

(Testimony of John T. Creighton.)

The COURT.—Of course, I understand that cross-examination is not necessarily limited to eliciting information that may bear on the issues in the case. It may be for other purposes: To test the capability of the witness and the extent of his knowledge. Therefore, I place very little importance [364] on the objection grounded on immateriality. But if it is material, I would like to know it.

Mr. CHAPMAN.—We admit that the candle-power was not carried on at an average of 20, but we give as a reason why, in our answer, that it was inconsistent with the gas company's plan of operations, and it was done pursuant to request, and therefore the test in that particular does not show the efficiency of the apparatus in that respect exactly.

The COURT.—The objection is overruled.

(Plaintiff excepted to the ruling of the Court.)

A. Yes, sir.

Q. Why did you do that?

A. In order to get the commercial candle-power that was necessary to carry. If I didn't know the candle-power that he was making on his machine—whether it was 20 or 25—it was immaterial to our commercial candle-power, because we had other generators that we could reduce the candle-power on and bring the commercial candle-power to the candle-power of 19 or 19.5.

Q. Then, why did you remind him when his candle-power got too high?

A. To know whether he intended to keep it there or not, because the very next hour or three hours it

(Testimony of John T. Creighton.)

would be three or four candles the opposite way.

Q. If he carried his candle-power beyond your average standard—which was something over 19—above that, then it would be necessary for the candle-power in your oil-gas operations to be reduced?

A. Yes, sir.

Q. And you say that would require some adjustment of operation of your oil-gas apparatus?

A. Yes, sir. [365]

Q. What adjustment would that necessitate?

A. The candle-power would have to be reduced on the other machines if his candle-power was higher than the commercial candle-power.

Q. Now, to reduce the candle-power of the other machine, you would have to do what?

A. Reduce it.

Q. By what means? Reducing the quantity of oil sprayed into the machine, or regulating the heats?

A. There is various methods. Both will do it.

Q. Also the time of the run has an effect on the candle-power, hasn't it? A. Partly so.

Q. What other of the various methods can be resorted to to regulate the candle-power.

A. Well, they are very numerous. By turning steam in it will do it. Cutting some steam off will do it.

Q. Isn't that a matter that requires some considerable care and some experiment and adjustment and operation to determine what changes to make?

A. It depends on how balanced the other generators or gas machines are, whether you can do it

(Testimony of John T. Creighton.)
inside of an hour or two hours.

Q. It is a matter, however, of some inconvenience to be compelled to reduce or change the candle-power from the standard that you are carrying in your oil-gas machine?

A. Nothing more than issuing an order.

Q. And if you are issuing an order somebody has to execute the order? A. Yes, sir.

Q. And consequently, wasn't it desirable on the part of your company that the water-gas apparatus be maintained at an [366] average candle-power that would conform to that which you were carrying in your other machines? A. No, sir.

Q. It was not even desirable?

A. I do not understand the first of that. It was not desirable on their part.

Q. On the part of the Gas Company?

A. It was not desirable on our part. We didn't have anything to do with that. We took the candle-power that they gave us, as close to the contract as they could make it, and then we treated and balanced the commercial gas and candle-power that they gave us, trying to make their test run; if it was 20 we took it, and if it was 22 we took it, or 16. And if it was down as low as 13 we took it, and we would take our oil-gas machine and bring it to the standard of 19 or 19.5.

Q. But in the regular course of your operations, you had been before then and are now regulating those machines so as to carry and maintain a candle-power of 19 candles? A. At the present time?

(Testimony of John T. Creighton.)

Q. And then at that time?

A. I think it was along about 1905, if I remember right—our water-gas set would always vary in regard to the manufacturing of water-gas in combination with oil-gas. The gas manufactured was somewhat different. You could either carry more candle-power in the water-gas and a lower one in the oil-gas, and give an illuminant of 19 candles.

Q. Do you mean to tell the Court that it would be preferable to you and the operators to have this carried out above the candle-power, so as to reduce your candle-power in the other machines, to conform to it, rather than have it—

A. It is cheaper to make a lower candle-power.

Q. Is it cheaper? [367] A. Yes, sir.

Q. So, when the water-gas machine the Western Company was making 19 candle-power, it was costing your company less money than if they had raised that candle-power to twenty? Is that correct?

A. Not on that particular machine.

Q. You were paying for the oil? A. Yes, sir.

Q. Why wasn't it costing you more money to operate that machine at 20 candle-power than it was at 19? A. I don't know.

Q. You know that it wouldn't cost your company as much money to maintain the candles at 19 than it would to maintain it at 20?

A. Not on our machine.

Q. I am talking about this machine.

A. If the machine was balanced properly probably it wouldn't. That is, the oil and everything, etc.

(Testimony of John T. Creighton.)

Q. Do you claim that this machine was not properly balanced? A. Yes, sir.

Q. What do you mean by that?

A. The steam and the oil that was turned into the gas.

Q. You mean by that that they were not supplying the machine with the proper quantity of air and steam and oil to get the proper results or best results from the apparatus? Is that what you mean?

A. No, that it not what I mean.

Q. What is it that you mean?

A. I mean from the results that I saw from the machine, it took so much oil to do certain things; it took too much carbon to do certain things; and it *too too* much carbon to do certain things; and it and it took so much air to do certain things; and if those things were properly blended in the right construction of the machine, they would have got a better result.

Q. Well, that was a matter for the operator to regulate? A. No, he is under orders.

Q. Some man gives the orders, doesn't he?

A. Yes, sir.

Q. Then it was a matter for the man who gave the orders to regulate? It was all in his power to regulate? A. Yes, sir.

Q. The other would turn on more or less steam, or more or less oil, or more or less air?

A. Yes, sir.

Q. Did you have supervision of the bricking of these bricks that were used in this machine?

(Testimony of John T. Creighton.)

A. Partly so; yes, sir.

Q. Do you know with what moisture on an average they left the bricking press?

A. Not the exact moisture; no, sir.

Q. Approximately on an average, I mean?

A. I know what the practice is; but what those bricks left at—I know what the moisture is that the brick machine will make a brick, and what moisture it won't make a brick, and between those averages the difference is manufactured into bricks.

Q. What are those limits?

A. Those limits run from fifteen to about thirty per cent thirty or thirty-five per cent—or something like that. That is the range of the least moisture that you can make bricks on those brick machines, and the most moisture that you can form a brick that will hold so that you can transport it to a pile.

Q. Was that true when these bricks were made?

[369]

A. That same practice held good.

Q. You mean to say that the material that contains less than ten per cent moisture cannot be bricked?

A. Yes, sir.

Q. On any machine or machines that you have there? A. In those machines.

Q. But with the proper apparatus they could be bricked? A. I never heard of one.

Q. You never tried it?

A. On these machines we have.

(Testimony of John T. Creighton.)

Q. But you don't know of any place where they have been bricking material with that percentage of moisture in them?

Mr. GOUDGE.—What percentage, Mr. Chapman?

Mr. CHAPMAN.—Ten per cent, or less than ten per cent.

The COURT.—Or less than fifteen?

Mr. CHAPMAN.—Yes, less than fifteen.

A. No, sir. By that I mean, of course, in a practical way. You might be able to get one brick, but the machine would break. It might be possible to press one brick, but it would not be practicable.

Q. (By Mr. CHAPMAN.) It is a question of power, isn't it? Why is it that you cannot brick the dry stuff? A. I don't know why it is.

Q. That material all contains a binder in the form of tar or volatile combustible matter?

A. Our experience is that the moisture is the only binder that really counts in the manufacture of brick, the same as in a building brick. The tempering of the clay or the carbon.

Q. The moisture, then, has the effect of creating an adhesive property in the material that makes it hold together? A. Partially so.

Q. If you drive out the moisture you have not a substantial brick? [370]

A. Yes, sir, you have a substantial brick afterwards.

Q. How it is that the moisture is the binding material when if you drive it out you still have a substantial brick?

(Testimony of John T. Creighton.)

A. It is just while you are pressing it.

Q. While you are pressing it the water takes hold and binds and after you cease pressing it it lets go.

A. No, sir.

Q. What is your theory about it?

A. Just from the kind of practice that I have had in the manufacturing of these bricks.

Q. And you find you can make a better brick with the moisture in it than with the dry material?

A. Yes, sir.

The COURT.—This moisture being the binder or adhesive force you can increase the water in it to what limit and still make a brick? Or does it make any difference how dry it is after the brick is once made?

A. It doesn't make any difference after it is once formed. It is the same as an adobe brick, when the moisture is out of it.

Q. Is there some chemical change in the formation of that brick?

Q. (By Mr. CHAPMAN.) Do you know whether the driving out of the moisture creates any change in the material or in the brick chemically?

A. No, sir; only a theory of my own. The theory is, your Honor, in getting the dry stuff, the particles are more apart and there is a great deal of air in the dust—the fine, dry dust. When you try to compress that you compress the air, and the air compression in there won't let the particles of carbon get together, which the water does not do. The water allows them to get together and bind; but when it is

(Testimony of John T. Creighton.)

fine, dry dust, the air don't let them do that. The air keeps them away. But the water will intermingle with them a little bit, and you [371] press the water to the outside and the particles of carbon together.

Q. (By Mr. CHAPMAN.) Did you ever weigh a brick that had been compressed and made into a fairly good brick with dry material, as compared with one that was made with moisture in it?

A. Yes, sir.

Q. And did you ever drive out the moisture from the wet brick and compare its weight with the dry one? A. Yes, sir.

Q. How does it compare?

A. The one that would be pressed with less moisture in it would be heavier than the one that had been pressed with moisture in it and then dried out afterwards.

Q. As a matter of fact, when you drive out the moisture it leaves a void in the brick that was occupied by the moisture? A. Yes, sir.

Q. And does not that render the brick unsubstantial as compared with one that is bricked dry or with less moisture? A. Not necessarily so.

Q. I believe you stated in your direct examination that you had experience in using material of the character supplied to this machine, in your own water-gas sets there? A. Yes, sir.

Q. Do you mean the kiln-dried brick?

A. I have had experience in all kinds of brick, mostly.

(Testimony of John T. Creighton.)

Q. Have you used kiln-dried brick, dried in the manner that this material was dried after the bricks were made, by fires built around them, in the manufacture of gas? A. Not in common practice.

Q. Did you ever do it at all? [372]

A. Yes, sir.

Q. With what result?

A. It cost too much to dry them. Otherwise you made gas with them which was very satisfactory.

Q. To what extent have you done that?

A. Just as a test.

Q. How long did you carry on the test?

A. Oh, probably a day's manufacture or two days. I can't recall now.

Q. Do you recall that there was a great deal of complaint on Mr. White's part and Mr. Pederson's part in regard to the condition of the fire-dried brick that you supplied this machine with?

A. He complained a great deal toward the last of the test.

Q. And his complaint was that they crumbled, so easily, wasn't it?

A. Most of his complaint was that they crumbled.

Q. Wasn't that a fact?

A. They crumbled some.

Q. They crumbled to such an extent that on some days one-third of the entire material that went down the chute was sifted out through the slits that you speak of? A. No, sir.

Q. Never as much as a third?

A. Not that I know of.

(Testimony of John T. Creighton.)

Q. Did you make any observation or keep any track of what the extent of the crumbling was?

A. Yes, sir.

Q. You have examined the records here—

A. Not by actual weight, only by observation. I noticed the actual weight. [373]

Q. You noticed that sometimes it ran as high as twenty-five per cent, didn't you? A. No, sir.

Q. Take for instance the 17th. There is 136,000 pounds of carbon delivered, and 32,800 that went through the screen—however, that doesn't say that all that went down the chute does it? A. No.

Q. I don't know as we have any record that shows that?

Mr. EDWARDS.—What do you want?

Mr. CHAPMAN.—The consumption each day compared with the waste.

Mr. EDWARDS.—The consumption of fuel each day?

Mr. CHAPMAN.—Yes, sir.

Mr. EDWARDS.—The cards show it.

Mr. GOUDGE.—You deduct what is left on the floor.

Mr. EDWARDS.—Deduct 97,755 and there is the total consumption for the day.

The COURT.—Was the production of gas, speaking not with accuracy but approximately, greater or less in the earlier days of the test as compared with the production of the latter part?

Mr. CHAPMAN.—Greater at the first part of the test; it started at 2,700,000 feet the first day, and

(Testimony of John T. Creighton.)

dwindled down to something less than 1,200,000 the last day.

The COURT.—It is understood, I suppose, that all these papers that have been introduced or that will be introduced are read? In fact, none of them have been read.

Mr. CHAPMAN.—We might stipulate now that they may all be deemed to have been read.

Mr. GOUDGE.—Yes, sir.

The COURT.—And all that may be hereafter introduced? [374]

Mr. CHAPMAN.—Yes, sir.

Mr. GOUDGE.—Yes, sir.

Q. (By Mr. CHAPMAN.) You have noted, have you not, that on the 17th there was 136,000 pounds delivered and 32,800 pounds of waste removed?

A. That might have been possible, as some of the waste was not always removed the same day.

Q. Don't you know that the waste was removed every day of the test?

A. No, sir; not all of it every day.

Q. There is one on the 18th where the fuel delivered apparently was 112,675, and 28,675 removed. That is the next day after they removed 32,000?

A. This might have been a day that the generator did not take very much carbon on account of a possible temporary repair or something, when the men had plenty of time to remove the waste that had gathered previous to that.

Q. You have noticed that on the 17th they removed 32,800 pounds? A. Yes, sir.

(Testimony of John T. Creighton.)

Q. And on the 18th they removed 28,675 pounds?

A. Yes, sir.

Q. At any rate, you do know that there was a large quantity of fine stuff went through those chutes in each charging, don't you?

A. It was less than I had ever observed in the handling of bricks for making the water-gas in my observations at the gas works.

Q. Do you mean to say in making gas in your present plant you haul away as much waste as that that comes from the brick—is left over from the brick—that is handled to go into the generator?

[375]

A. It sometimes runs as high as 20 or 25 per cent.

Q. At the present time? A. Yes, sir.

Q. How do you handle it? Do you handle it through the chutes in that manner?

A. With the ones that we are using now?

Q. Yes, sir.

A. No, we don't handle it through chutes. We handle it through wheelbarrows and a fork; take it off of the floor through the fires. We handle it in wagons, though, just the same.

Q. Dump it on the floor and pitch it into the fire with pitch forks? A. Yes, sir.

Q. In these water-gas machines that you operate, how much carbon do you use to each thousand feet?

A. It depends upon the moisture in the carbon.

Mr. CHAPMAN.—We want to show that it is impossible to get efficiency economically with brick that crumble in that manner. I want to show that they

(Testimony of John T. Creighton.)

use in their machines anywhere from 39 to 63 pounds to the thousand feet.

Q. (By Mr. CHAPMAN.) Don't you keep a record of the carbon used independently of the moisture? A. No, sir.

Q. I call your attention to a statement that purports to be a statement of the water-gas made and the carbon used in August, 1911, in your water-gas manufacture, attached to the deposition of Mr. Luckenbach which is on file in this case, and ask you if that does not correctly represent the consumption of fuel per thousand feet in your water-gas apparatus during that month.

A. That is carbon plus the moisture, if this is the record [376] of those machines. It is the carbon plus the moisture.

Q. Is that in accordance with your understanding of how the carbon plus the moisture runs in that machine?

A. It varies a great deal, sometimes, as the moisture varies.

Q. Between what limits does it vary?

A. I would say thirty and sixty.

Q. Thirty pounds of fuel to sixty? A. Yes, sir.

Q. You have four sets there, have you not—water-gas sets? A. Yes, sir.

Q. What are their dimensions?

A. I cannot recall them right now.

Q. Any of them as large as this machine?

A. There is a different construction than in this machine, altogether.

(Testimony of John T. Creighton.)

Q. But they are small sets, aren't they?

A. Yes, sir.

Q. About what size are they?

A. Eight to ten feet in diameter.

Q. What is the greatest output of those machines for twenty-four hours with the use of that material?

A. The greatest one day's output?

Q. No, the average output?

A. In the neighborhood of a million and a half cubic feet of gas per day.

Q. When Mr. White complained to you about the character of the fuel, what did he say?

A. He asked me if I didn't think the bricks were breaking up too much, as being the cause why he was not making as much gas as he did the first two or three days. [377]

Q. Is that all he said to you about the bricks?

A. Yes, sir. He often said it though.

Q. What would you reply?

A. I didn't think so.

Q. Don't you know that a great deal of fine stuff got into the generator in going down into these chutes?

A. Not in the ordinary gas practice of handling those bricks.

Q. Can you give us an idea what proportion of fine stuff in customary practice goes into the machine?

A. I would say five per cent to ten per cent.

Q. Five to ten per cent?

The COURT.—Where is the furnace of that machine on that diagram?

(Testimony of John T. Creighton.)

Mr. CHAPMAN.—It is right in the generator.

The COURT.—That generator then itself is the furnace, so to speak? I mean by furnace the receptacle for the fuel?

Mr. EDWARDS.—Yes, sir, for the carbon fuel.

Q. (By Mr. CHAPMAN.) Five or six per cent, you think, in common practice, goes into the generator? A. Five per cent, I believe it is.

Q. I understand that in your practice you handle it from the charging floor of the generator with a pitchfork? A. Yes, sir.

Q. Didn't you tell Mr. White during this operation that if the Gas Company accepted the machine and it came into your possession and control, you would be making two and a half million feet of gas with it before the month expired?

A. He asked me the question if I couldn't do it.

Q. What did you say? A. I might.

Q. Didn't you tell him that you would make some changes [378] in the machine and make some changes in the method of feeding the machine, and get results of that kind? A. No, sir.

Q. Did you have a conversation along those lines with Mr. Pederson?

A. I don't remember having any conversation with Mr. Pederson along those lines.

Q. You say you are sure the conversation you refer to was with Mr. White? A. I think it was.

Q. But you did talk with both of them on various subjects?

A. I talked a great deal about the machine, off and on.

(Testimony of John T. Creighton.)

Q. May it not have been that the conversation that you refer to was with Mr. Pederson?

A. I don't know.

Q. I believe you stated that the materials that are handled in the bricking machines run sometimes as high as 60 per cent moisture?

A. In the bricking machine?

Q. Yes, sir.

A. No, sir; I never made any such assertion.

Q. I misunderstood you, then. What is the average moisture in the material that is bricked before it is bricked?

A. I stated that the practice has been found that it is possible to brick carbon from 15 to 30 or 35 per cent of moisture. The average is about the best—in the neighborhood of 20.

Q. Then, you must dry it out somewhat before you brick it, don't you? A. Sun-dry it.

Q. Before it is bricked? [379] A. Yes, sir.

Q. Then after it is bricked on that percentage of 20 or 25, you then subject it to a drying process after it is bricked by letting it stand in the air?

A. That is the practice.

Q. Was that the practice followed in this test?

A. Yes, sir.

Q. That you dried the material first to 20 or 25 per cent of moisture and then bricked it? A. Yes, sir.

Q. And then let them stand in the air?

A. Yes, sir.

Q. And afterwards built fires around them?

A. We built fires on them after we found that

(Testimony of John T. Creighton.)

they were not down to 10 per cent, on account of the rains and so forth during the winter.

Q. Do you know anything about any hot bricks being delivered into this plant and there used during the test? A. No, sir.

Q. You don't know anything about that?

A. No, sir.

Q. Well, warm brick? A. No, sir.

Q. Do you know what the relative substantiality of warm brick is as compared to brick of normal temperature?

A. I don't quite understand that question.

Q. I mean a brick that is artificially heated and before it cools, is it as strong a brick as one that has been allowed to cool?

A. At different temperatures there would be a different physical strength of brick.

Q. Which is the stronger, the heated brick or hot brick, or the cool one? [380]

A. The heated brick, if you let it cool, is just as strong as it was before it was heated.

Q. I am asking you about when it is hot?

A. I don't know. I haven't made any tests along those lines.

Q. Haven't you thrown hot bricks around the yard to ascertain whether they would stand the jarring or not? A. No, sir.

Q. You don't know what the effect of heat on a brick is so far as its strength is concerned?

A. I know after they cool what they are. I have

(Testimony of John T. Creighton.)

seen them heated and then cooled, but while they are really hot I haven't handled them to any extent.

Redirect Examination.

(By Mr. GOUDGE.)

Q. You have already spoken of your experience in the gas business. I will ask you whether you know what is the meaning of the expression or the meaning given to the expression "lamp-black" in the gas trade in this country? A. Yes, sir.

Q. What does that term mean? What is it commonly understood and taken to mean in the gas trade?

A. It means a by-product from oil-gas manufacture.

Q. Have you ever talked of material under the designation of lamp-black with other persons engaged in the business of gas manufacture outside of persons who are connected with the Los Angeles Gas and Electric Corporation or Los Angeles Gas and Electric Company? [381] A. Yes, sir.

Q. Have you ever discussed or heard discussed the by-product of your oil-gas manufactured by such persons, and, if so, under what name has it been referred to by them?

A. It has always been referred to by them as lamp-black.

Q. Were all of the bricks that were furnished to The Western Gas Construction Company during the progress of this test composed of this by-product that you are describing as commonly referred to as lamp-black? A. Yes, sir.

(Testimony of John T. Creighton.)

Q. For how long a period of time have you known this substance to be designated in the trade as lamp-black? A. Ten years in my practice.

Q. Mr. Creighton, you have described the manner in which the fuel was fed into this generator in this test, namely, down through the chute?

A. Yes, sir.

Q. I will ask you whether it was possible with that machine, constructed as it was, to feed the fuel into this generator by forking it in in the manner that you have described was pursued by your company in its water-gas set? A. Yes, sir; it is possible.

Q. Was any of the fuel that was fed into this generator during the test put into it by forking in?

A. Yes, sir.

Q. Who directed or controlled the manner in which fuel was fed into this generator during the test?

A. Mr. White and Mr. Pederson. [382]

Recross-examination.

(By Mr. CHAPMAN.)

Q. You don't mean to say that they forked in fuel into the generator in the last test—the twenty day test? A. I believe it was during one or two days.

Q. During the test?

A. Yes, sir. That is, it was forked in for a trial to see how it would work.

Q. Are you sure that you are not confusing that trial or experiment with some preliminary test before the final test took place? A. I don't think so.

Q. Don't you know that they did fork it into the machine for a while before the test was started, and

(Testimony of John T. Creighton.)

they found that it took so much time that they were losing a greater portion of time than would ordinarily result in the operation of the machine, on account of the size of this machine?

A. That was tried previously, too.

Mr. GOUDGE.—We desire to offer in evidence a letter on a letter-head of The Western Gas Construction Company, dated San Francisco, California, December 18, 1909. I believe it will be admitted without our proving it that this letter was written and sent on the date it bears, December 18, 1909, by Mr. Pederson to the Los Angeles Gas and Electric Corporation; is that right?

Mr. CHAPMAN.—Yes.

(Mr. Goudge reads said letter in evidence, and the same is marked Plaintiff's Exhibit 55, and is as follows:) [383]

Plaintiff's Exhibit No. 55.

THE WESTERN GAS CONSTRUCTION

COMPANY,

Gas Engineers,

Fort Wayne, Indiana.

San Francisco, Cal., December 18, 1909.

Los Angeles Gas and Electric Corporation,

Los Angeles, Cal.

Gentlemen:

Attention Mr. Luckenbach.

We have, as yet, not received your letter confirming your verbal agreement to pay the cost of building additional foundations for the generators installed by us in case the plant fulfilled the guarantee,

(Testimony of B. S. Pederson.)

and was accepted by your company. I should like to have this confirmation for my file, and would appreciate your early consideration of the same.

With compliments of the season, I am,

Yours very truly,

THE WESTERN GAS CONSTRUCTION
COMPANY,

Per B. S. PEDERSON.

BSP/H.

Plaintiff here rests. [384]

[**Testimony of B. S. Pederson, for Defendant.]**

B. S. PEDERSON, called on behalf of the defendant, being first duly sworn, testified as follows:

Direct Examination.

(By Mr. CHAPMAN.)

Q. What is your business or occupation?

A. Pacific Coast Manager of The Western Gas Construction Company.

Q. How long have you been in their employ?

A. About fifteen years.

Q. Have you been engaged in that capacity during all that time?

A. No. Since 1900—about ten or eleven years in that capacity.

Q. Before that time what was the nature of your duties with that company?

A. I was erector of gas machinery.

Q. When did you first go into the gas machinery business? A. In 1894 or '5.

Q. Have you been following it ever since?

(Testimony of B. S. Pederson.)

A. Yes, sir.

Q. During all that period have you been connected with gas plants and gas manufacture, and the erection and installation of machines? A. I have.

Q. Have you had any college or school training in the science of gas-making or construction of gas apparatus? A. No, not directly in that branch.

Q. Your knowledge of the subject of gas-making is derived from practical experience, rather than from book training?

A. From practical experience, supplemented by extensive reading and study. [385]

Q. But you are not a graduate engineer?

A. I am not.

Q. Have you been following the business of gas manufacture and erection of machinery ever since you entered the business?

A. I have. Well, the first year I was engaged as operator in a gas work—that is, coal-gas and water-gas works.

Q. Have you had charge of the erection of a great many plants. A. I have.

Q. Have you made any specialty of water-gas apparatus?

A. For a period of seven or eight years I was entirely engaged in the water-gas business.

Q. Were you the agent of the defendant company at the time this contract was made with the plaintiff corporation? A. I was.

Q. You are the man that conducted the negotiations that led up to the contract? A. Yes, sir.

(Testimony of B. S. Pederson.)

Q. And your negotiations were principally made with Mr. Luckenbach of the Los Angeles Gas and Electric Corporation? A. Yes, sir.

Q. Do you recall when you first began to discuss the subject of installing this plant with him?

A. I do.

Q. About what time?

A. I think the first time the subject was mentioned was in December, some time in 1906. One of my customers met me on the street and mentioned the fact that Luckenbach wanted to see me; that he thought there was some work in sight. I called on Mr. Luckenbach at that time and he inquired if we could make an apparatus having a capacity of approximately 3,000,000 feet of water-gas per day. I told him that we could, because in our [386] bulletin we specified an apparatus of that size.

Q. Did he say anything about the character of the fuel to be used?

A. At that time he mentioned that we would use lamp-black fuel, and in talking the matter over he said that they were at the present time briquetting it for commercial use, and that they were contemplating the installation of apparatus to dry out this lamp-black, and that they would turn brick out and furnish it to us for use in this machine. I asked him if they had any of it on hand, so that we could determine the quality of it and he told me that they had down at the gas works, and that I could go down and see Mr. Millard, the superintendent, and he would show me samples of the material that they intended

(Testimony of B. S. Pederson.)

to use, but not in the shape. He would show me the quality.

Q. Did he tell you what difference there would be or might be in the shape as compared with the sample shown you?

A. He did. He said they contemplated putting in a machine to make a brick form rather than a briquet. But they contemplated this bricking machine for that purpose, and contemplated purchasing it for that purpose.

Q. Had you any familiarity with the gas company's plant at Aliso street at that time in the way of personal knowledge of what they were doing down there?

A. Only such as could be gained by casual observation. I was always admitted there as a gas-man and shown courtesies the same as any other gas-man would be.

Q. Were you familiar with the by-products of oil-gas making machines that they call lamp-black?

A. Oh, yes, I have been familiar with that for some years, and was at that time.

Q. Had you ever made gas of it?

A. No, sir, I had not. [387]

Q. Had you ever constructed an apparatus before to use that material? A. I had not.

Q. Do you know whether the material had been at that time extensively used in any gas-making machines?

A. I knew of two or three plants where they were using lamp-black fuel. I knew they were using it

(Testimony of B. S. Pederson.)

here and in San Francisco they were using it.

Q. Your principal familiarity had been in the operation of plants for the use of what material?

A. Coke and anthracite coal.

Q. And you were familiar with the method of manufacture and operation of machines for the use of that material? A. Yes, sir.

Q. And with the results obtained?

A. Yes, sir.

Q. In the manufacture of water-gas from fuel of that character, is the principle the same?

A. The principle is the same.

Q. What is the composition of anthracite coal as compared with lamp-black, in a general way?

A. It is very largely the same. The amount of carbon will run possibly a little higher, because we don't have the Lithian oil or binders in the anthracite coal as you would have in the carbon. So where there would be possibly eight or ten per cent of binder in the ordinary lamp-black brick and two or three per cent usually of ash, the anthracite coal would run about ninety-five per cent of carbon with five per cent ash, or approximately that. I wouldn't say absolutely. I haven't the figures with me.

Q. And the by-product of this plant or of these plants is nearer a pure carbon? [388]

A. I won't say nearer to a pure carbon, no; for the reason that there would be from seven to ten per cent binder, which would not be pure carbon, but a hydrocarbon.

Q. What part does the binder or hydrocarbon and

(Testimony of B. S. Pederson.)

the ash in the material—the fuel—play? Does it play any part in the gas manufacture?

A. The hydrocarbon when released would only tend to add a certain amount of heat to the apparatus during a blast. During a run I would say there would be no additional *advantage* the hydrocarbon. The fact is, before you get to the running part, the hydrocarbon is driven off in the blast, so it adds no value to the fuel. The ash is a negative quantity in both cases.

Q. How about the ash in lamp-black as compared with ash in other fuels used in water-gas machines? Would it be more or less? A. It would be less.

Q. Much less?

A. Well, in ordinary cases, the difference between five and three per cent. There would probably be three per cent ash in lamp-black which would not be ash, but an accumulation of dirt. There is no ash as ash in the fuel.

Q. What part does the carbon in the lamp-black or the lamp-black itself play in the gas manufacture?

A. In the first place, the carbon is used to obtain the heat in the carbureter and superheater. That is done by the introduction of oxygen and forming a combustion in there. The gases arising from the combustion being used in the carbureter and superheater to heat the two shells. When this carbon has been heated to incandescence, the gas-making process begins, by closing off the blast and admitting steam. This steam passes through the incandescent mass of carbon and a chemical reaction takes place. The

(Testimony of B. S. Pederson.)

heat decomposes the steam [389] into its two component gases, hydrogen and oxygen. The oxygen combines with the carbon, forming, first, a carbon dioxide, and then by passing further on it makes a carbon monoxide, or equal parts of carbon and oxygen. The hydrogen is released and passed through as free hydrogen. It is not combined in any other combination in the generator.

Q. And the two gases thus form,—the free hydrogen and the gas formed by the union of oxygen with the carbon, forms the water-gas.

A. It forms pure water-gas which in turn forms about 70 per cent—from 65 to 70 per cent—of the commercial water-gas.

Q. So that the value of the fuel for water-gas making purposes depends on the extent of carbon?

A. Entirely upon the quantity of carbon contained.

Q. The desideratum for the gas-man with a machine of that kind is to get fuel with as much carbon as possible? A. —.

Q. Did you go to the plant pursuant to Mr. Luckenbach's direction? A. I did.

Q. Did you obtain a sample?

A. Not at that time.

Q. Did you at any subsequent time?

A. I did. I saw the samples and examined them the first time, and I questioned Mr. Millard about them, and obtained from him the information that I desired to get so as to be able to form an opinion as

(Testimony of B. S. Pederson.)

to whether we could handle it or not in a machine of our kind.

Q. Was there anything said between Mr. Luckenbach and yourself with reference to guarantees?

A. At that time I cannot say exactly whether anything [390] was said. We talked over matters generally, but principally whether we could build a machine of that kind, and that matter of a guaranty, I think, came up at a later time. I won't be positive as to having that up at the first conversation.

Q. Was your conversation with Mr. Millard or your first visit to the plant for the inspection of the fuel prior to—subsequent to the letter of March 5, 1907, that has been introduced in evidence?

A. That was prior to that time. Yes. It was along a month or two. I was here in December and a piece of January. The correspondence will show that. I am not exactly positive of the dates.

Q. Did you subsequently obtain a sample?

A. I did.

Q. When was that with reference to writing the letter of March 5? A. That was afterwards.

Q. After the letter was written? A. Yes, sir.

Q. Did you have any conversation with Mr. Luckenbach prior to or about the time that letter of March 5 was written, with respect to writing such a letter?

A. I did.

Q. What was the substance of that conversation?

A. At that time we were getting pretty close to a contract having talked over *specifications* it, and other matters pertaining to this work. Mr. Luck-

(Testimony of B. S. Pederson.)

enbach emphatically wanted it understood that we should have a certain quality of fuel in making this contract, and in getting results. And I think he said, "I don't want you to come and say afterwards that we promised you bricks such as you have seen down there and have obtained, but we are installing a bricking machine, and [391] that will be the form of the brick. But it will be the quality that you saw down there. It will be such fuel as that, but in a different shape," and says to have this absolutely without any misunderstanding, and we had better write it down. I think he then wrote this letter to confirm his conversation with *me*. *What did you do with the letter?*

A. I think that letter—I don't remember whether it was sent to me or to the home office.

Q. Do you know whether or not it was submitted to the home office before the contract was entered into?

A. Oh, yes, I know that. Well, I know that from the fact that they received the letter, and it has been acknowledged as being the letter sent to them.

Q. Did you examine these samples that Mr. Millard submitted to you?

A. I did. I did for stability. I had no means of taking any chemical analysis of the brick or briquet, but for stability I gave them a thorough examination by concussion and handling, and Mr. Millard at that time made some explanation that they had different grades of briquets on hand. Some, I think, had been made three months, and some probably had

(Testimony of B. S. Pederson.)

been made six months.

Q. How did those briquets compare in stability and physical strength with the brick that you used and that was furnished to that machine during the twenty-day test?

A. There was no comparison between them for the simple reason that the samples shown us were of such a hardness that you could not break them ordinarily in your hands or by striking them together or by dropping them on the floor, whereas, I doubt if there was a brick supplied us during the test that would stand a drop of four or five feet from the ground. [392]

Q. Did you send these samples to Fort Wayne, to the company for which you were working?

A. I sent those on, not particularly to show them what it was, but to confirm my stand actually taken in going into this matter.

Q. Do you know what percentage of moisture they contained?

A. I had a copy of the report, and if my memory serves me it was about three per cent.

Q. Was that—so that from the letter that Mr. Luckenbach wrote of March 5, which contained a statement of the conditions and the contemplated conditions there, and what you had learned from what you said you did in respect to obtaining samples and going down there—had you any other knowledge of the conditions under which you were to operate?

(Testimony of B. S. Pederson.)

A. No, I don't know of any other knowledge that I had.

Q. Were your guaranties based upon the information that you had thus obtained? A. They were.

Q. In the conversation of the gas generator or water-gas generator for the use of carbon, either in the form of lamp-black or anthracite coal or coke, does the size of the machine have anything to do with its capacity?

A. It has everything to do with the capacity.

Q. Upon what is the capacity of the machine based? I mean with respect to the dimensions.

A. On the grate area. [393]

Q. (By Mr. CHAPMAN.) In operating a water-gas generator, Mr. Pederson, is it necessary to have fuel of any particular size or uniformity?

A. With certain restrictions, yes.

Q. What is the requirement in that regard?

A. The requirement would be a uniform fuel, as near as it could be had, and not of excessive size. So, the ordinary usage is a fuel about the size of lumps of coke, when you are using coke—the ordinary size coke. In coal, lumps about three or four inches in diameter, approximately.

Q. About to what depth do you carry the fuel in this generator under proper practice?

A. From eight to ten feet.

Q. What is the necessity of having the fuel of uniform size?

A. So that in the combustion of fuel the air may pass through the interstices caused by the contact of

(Testimony of B. S. Pederson.)

these lumps, the oxygen of the air affording combustion of the carbon. And the same reason holds good in passing steam through the incandescent mass after the blast, so that decomposed steam, or that part of it which is oxygen, may come in contact with the incandescent carbon and form the CO².

Q. In other words, if the fuel is dumped in in uniform size, it lies with openings and interstices in the mass so that the air and steam can get through?

A. Yes, that is the idea.

Q. (By the COURT.) You want bricks then of uniform size—of the fuel, whatever it is, of uniform size?

A. The fuel, whatever it is, should be of uniform size, and of such consistency as to retain that size and shape in the fire till it is consumed; it won't retain that size, but the gradual combination of the carbon with the oxygen reduces the [394] size of the lump, so that by the time it reaches the grate-bars it is very much smaller, but not entirely consumed.

Q. (By Mr. CHAPMAN.) At what point in the generator do you pass the air into the fuel to create combustion? A. Under the grate-bar.

Q. Then it must pass up through the fuel?

A. Pass up through the fuel, over to the carbureter, down through the carbureter and into the superheater, and out through the stack-valve.

Q. When you are passing the air through, what do you call that period?

A. The blasting period or blowing period.

Q. The air is passed through under pressure?

(Testimony of B. S. Pederson.)

A. Yes, sir.

Q. Must it come in contact with all of the fuel in order to create combustion and raise the fuel to the proper heat? A. It must.

Q. And also the steam?

A. The steam must come in contact with all the carbon in order to be decomposed and changed into gas.

Q. About what period, ordinarily, do you continue the blast or the blow?

A. They vary slightly under different conditions. From five to six minutes blast, with the same period of gas-making.

Q. What is the effect upon the combustion and the ability to raise the fuel to the proper heat if the bricks or fuel furnished is not of uniform size, as you say, and crumbles up before it gets into the fuel or afterwards?

A. The effect then would be that fine dust or material will fill in the spaces and make a packed mass so that the blast cannot readily find its way through, and after it packed sufficiently, the blast would hardly get through at all but would just go into the fire-box and keep backing up against [395] the fuel and the fan would continue turning.

Q. (By the COURT.) In order to work properly the blast must permeate (I don't know if that is the correct word)—it must be permitted to go through the mass of fuel at various and diversified points?

A. Yes, sir. The fine opening caused by the air spaces; and pass through the entire mass. The effect

(Testimony of B. S. Pederson.)

of choking the fire with this fine dust would be that the blast would seek outlets where it could, which would be around the wall of the generator.

Q. That would not give the result required?

A. It would give very much reduced results. It would give results corresponding to that outer surface.

Q. The substance of your testimony is that the blocks of carbon should lie properly with reference to each other? Not only that, but the amount of carbon—

A. Both of the amount of carbon; not only the shape, but the manner in which it is placed in the generator.

Q. (By Mr. CHAPMAN.) Does the crumbling of the fuel and the pulverization of it—in the way you have described—result also in any dust or fine particles being carried on into any other part of the machine to its detriment?

A. It does. The blast in blowing up through is able to carry these fine dust particles over into the machine; whereas, if the lumps were solid, they could not do so. The large lumps of fuel which has a density of coal or coke cannot be thus blown over, with the possible qualification that a certain amount of the ash that gathers on the outside of the fuel may be carried over—possibly one or two per cent. But where the whole lump is disintegrated into dust it carries the entire mass.

Q. Where does it go? [396]

A. Into the carbureter, and maybe into the superheater.

(Testimony of B. S. Pederson.)

Q. (By the COURT.) Mr. Pederson, go to that diagram and draw a line indicating what would be the bottom that supports this fuel in the generator.

A. These (illustrating) are the grate-bars.

Q. It rests right there?

A. It rests right there. It forms one body above this brick wall eight or nine feet high, and there are two bodies of fuel. The grate-bar is here. This is the ash-pit where the residuum from the carbon is shaken down and is gathered.

Q. The blast comes in where?

A. Into this pipe here and this pipe. We have two blast pipes.

Q. How does it work its way into those other places?

A. They are called bearing bars. For instance, here is a support here and support here, and the bearing-bar across this way, and the grate-bars from bearing-bar to bearing-bar.

Q. And that is forced in and is sucked in from above—that air?

A. No, sir. It comes in with a pressure of 20 to 21 inches in this case, the pressure depending largely on the quality of the fuel that you have. Sometimes, take a fuel that is considered high in hydrocarbon, you require more air to consume it than some other fuel, and we get more air by getting more pressure in a certain orifice. So we have air coming in here and into this large chamber, and the pressure forces it through the fire.

Q. (By Mr. CHAPMAN.) When you apply the

(Testimony of B. S. Pederson.)

air to the fuel in the way you have described for the purpose of heating the machine during the blow, what are the products of combustion?

A. There would be what we call a producer-gas, carbon monoxide and a certain amount of carbon dioxide. But the carbon monoxide passes over to the carbureter and is used to heat up that shell. It is ignited in the second shell, and [397] has a combustion at that point.

Q. And you really depend on that to heat the carbureter? A. Entirely.

Q. And what about heating the superheater?

A. That is called a secondary combustion. The carbureter does not require for its heating all the gas that the generator will produce, and in passing this gas to the carbureter we admit only enough air to consume a portion of that gas. Then we pass on to the superheater and admit enough air to complete the combustion of this gas, if it is required, or enough air to give us the combustion we need, and the balance of the gas passing through the stack if we do not require it all for heating up.

Q. And by that process you have the three principal parts of the apparatus heated to the proper temperature? A. Yes, sir.

Q. And then you close the apertures?

A. Then we close the air-valves and the stack valves.

Q. In this machine was there any method provided for catching or collecting any part of the fine material that might blow over with the products of com-

(Testimony of B. S. Pederson.)

bustion during the blow? A. There was.

Q. Explain that to the Court.

A. All our carbureters are provided with a chamber to receive ash that would naturally be in any fuel. For example, we figure three to five or seven per cent ash in any ordinary fuel. There is a chamber provided to receive this and prevent its going into the carbureter. The gas comes in through here and strikes this wall here. There is a wall here of heavy fire brick, and the shape of that chamber is a segment of that circle—of that entire carbureter. The dust, if there be any, strikes here, and by precipitation drops into this chamber till it is time to clean out, and then it is [398] opened and taken away.

Q. In this lamp-black fuel are there supposed to be clinkers?

A. No, there is not supposed to be clinkers, and I find by experience that there are practically no clinkers. Any clinkers we would find or portions resembling clinkers would be just particles of dirt or sand, for example, that got in there and glassified, as you might call it, or melted. It is a very small factor.

Q. In the operation of the machine is it necessary to take any means or provide any measure for cleaning the carbureter? A. Yes.

Q. What is the practice, and what is the necessity?

A. The practice is at stated periods to close down the apparatus and either by natural or forced draft burn out any accumulated carbon that may be on the brick.

Q. You use oil in the carbureter? A. Yes, sir.

No. 2159

2

United States
Circuit Court of Appeals
For the Ninth Circuit.

Transcript of Record.
(IN TWO VOLUMES.)

LOS ANGELES GAS AND ELECTRIC CORPORATION,
a Corporation,

Plaintiff in Error,

vs.

THE WESTERN GAS CONSTRUCTION COMPANY,
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Defendant in Error.

VOLUME II.

(Pages 417 to 873 Inclusive.)

Upon Writ of Error to the United States District Court of the
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(Testimony of B. S. Pederson.)

Q. In the use of California oils is there any residuum or deposit on the carbureter bricks that makes that imperative?

A. There is. The California oils contain a great quantity of asphaltum which is not gasified, and while a good portion of it passes down through the bricks and will probably burn up during the blast, there is a resulting deposit there which compels us to clean out at certain periods.

Q. How often?

A. That would vary with conditions again. If generator conditions were ideal, such as we find with anthracite coal or coke, and no accession of dust blown over that you cannot take care of in the chamber, it would run quite some time, it might run two or three weeks or four weeks. It is a [399] difficult matter to say. But where the conditions are adverse it would take a much shorter time. That is something that has to be determined solely on local conditions.

Q. (By the COURT.) What might be those adverse conditions?

A. This California oil in the carbureter and then the use of carbon fuel that is so disintegrated and that forms so much dust that a great mass blows over, and that mixes with the oil that is sprayed in there and forms a coat of solid carbon there.

Q. And that necessitates cleaning?

A. That necessitates cleaning. As the conditions were here, you would have to clean at least once a week by forced draft.

(Testimony of B. S. Pederson.)

Q. (By Mr. CHAPMAN.) Do you know what the practice is in the operation of water-gas sets in this southern country?

A. The only one that I know of of any size in operation in this country is the one in operation at the Aliso street works of the Los Angeles Gas and Electric Corporation. They take one day a week to clean out their machine.

Q. How do they clean it out?

A. By forced blast. Sometimes by forced blast and sometimes by natural blast. I am not positive whether they use one all the time or not. That is the usual custom.

Q. You mean they let it lie idle during the day and let it burn out? A. Yes, sir.

Q. And that removes the carbon from the checker-brick? A. Yes, sir.

Q. During this test did you follow that practice of taking a day each week? A. I did not.

Q. Prior to the time this test was undertaken, did you have any conversation with Mr. Luckenbach about the matter of laying [400] off a day a week?

A. I did.

Q. Who was present and where did it take place?

A. Mr. Millard was present and it took place in Mr. Luckenbach's office.

Q. About what time?

A. I cannot state the date. It was some time previous or prior to the test, but it was before—if my recollection serves me—it was before I went north the last time. I was here off and on so often that the

(Testimony of B. S. Pederson.)

periods have not stayed in my mind. There was one time there previous to the test.

Q. State what was said.

A. I brought up the subject of having a day off each week to clean out—it was some time before the test. I should judge some time within a month or two before the test. I brought the subject up. I had already talked with Mr. Millard down at the works about the matter.

Q. First tell us who Mr. Millard is.

A. As I explained yesterday, he was the superintendent of the gas works at that time. We went together up to Mr. Luckenbach's office and took up that question, and we didn't seem to know just what to do about it at that time, and we asked Mr. Millard if it was the custom at the works to shut down all the different machines one day each week, and Mr. Millard said it was. He said, "That is a very good point, and it seems reasonable. We will think that over," I didn't get any definite statement from him that we could have that day a week.

Q. After that interview did you have the subject up with Mr. Luckenbach or Mr. Millard or other officials of the Gas Company? A. Later?

Q. Yes. A. Personally, I think not. [401]

Q. After the contract was made on July 12, 1909, did you conduct a preliminary experiment prior to changing the apparatus provided for in the contract?

A. I did.

Q. That was along about what time?

A. In August, I think.

(Testimony of B. S. Pederson.)

Q. And soon after the contract?

A. Soon after the contract.

Q. And after you made those preliminary experiments what did you do?

A. I submitted my report to the home office and my calculations in the matter, and I received authority to make a contract for the fulfillment of that contract by a local concern.

Q. And after you received that authority what did you do?

A. I made a contract with the Western Boiler Works to proceed with the work, and made arrangements to go ahead with that work.

Q. And did the work start and proceed?

A. Just as quick as it was possible to get the blue-prints out and get the material and the work in shape.

Q. (By the COURT.) When was the work commenced?

A. I think within two or three weeks of the time that we decided what to do. We had some work to do first to decide our line of action.

Q. Two or three weeks after you heard from your report to the home office?

A. Yes. We naturally negotiated with two or three concerns to get a contract at the proper price.

Q. How long after July 12, 1909, before you began making these experiments?

A. I think it was the latter part of the month. Within a week or two. [402]

Q. Wherein did the new generator differ from the old?

(Testimony of B. S. Pederson.)

A. It was enlarged. It had two charging doors and a division wall.

Q. While this work was in progress and before it was completed, did you have sole and exclusive charge of it or did someone else come on the ground?

A. Mr. White came on the ground and took charge of the work while it was in progress.

Q. What time did he arrive?

A. I think it was in the fall, sometime along in October or November; I am not exact as to the date.

Q. Do you know whether he was here constantly every day? A. He was from that time on.

Q. Engaged in putting this machine in shape?

A. Engaged in supervising the work. The Western Boiler Works had the contract, and Mr. White superintended the work. It was done under his supervision.

Q. After Mr. White arrived when was the first time that you came on the scene?

A. In the latter part of December. I was here for a day or two.

Q. Was it completed at that time?

A. I won't say positively whether it was or not. If it was not, it was very close to it. I won't positively swear to it.

Q. Did you have any talk with any member of the gas company people at or about the time you wrote that letter, with respect to the occasion for writing it or the purpose or reason for it?

A. I had talks with the gas company people numerous times with reference to this same subject of

(Testimony of B. S. Pederson.)

moist fuel, and I always maintained that we would not use or should not use that [403] moist fuel. The contract called for a fuel prepared in a certain way, and I always maintained and do now that that is the fuel that we contemplated using, and that we should use. And while I was advised by different members of the gas company to the effect that it would do better with that fuel, which contained a great deal of moisture, Mr. White and I had a discussion on the same subject. He told me he was of that same opinion at that time.

Q. What did you understand to be the brick the gas company had furnished or provided for this test? Did you understand that they had bricks that they could furnish with less than 10 per cent moisture?

A. I did.

Q. And that they were in a position to furnish you there? A. I understood so.

Q. And you knew at the time you wrote that letter that they were going to fire-dry the brick or kiln-dry it? A. I did not.

Q. Did you know whether or not they had in operation a drying apparatus there?

A. At that time they had a Cummer drier going.

Q. At the time the original contract was made did you have any conversation with Mr. Luckenbach about the installation of a drier? A. I did.

Q. What was said on that subject?

A. The conversation in Mr. Luckenbach's office was in reference to fuel generally, and in this instance as to the manner in which they were going to

(Testimony of B. S. Pederson.)

prepare the fuel for us. He asked me my opinion as to the Cummer drier, and I told him I considered it a very good apparatus, and I had no doubt that anything Mr. Cummer told him that they could accomplish, they [404] would be able to accomplish. He said they were contemplating the installation of a Cummer drier of the capacity of 60 tons a day, which he said would be ample to take care of our generators. They intended at that time to install this for the purpose of drying this lamp-black down to between five and ten per cent moisture, and then brick it for our use.

Q. Do you know whether they did use that apparatus to any extent?

A. I think they did to a certain extent. How much, I don't know. It was tried out and they found at one time that it did not have the capacity they claimed for it, or there was a misunderstanding of some kind.

Q. Did they have the apparatus installed when you wrote the letter in December?

A. Yes, they had the apparatus installed at that time.

Q. Now, how long after the letter was written did you first operate the machine and make gas on the machine? A. This was in 1910, that you refer to?

Q. Yes.

A. That exact date I do not remember. I think it was in the latter part of January, some time.

Q. And how long did you operate the machine?

A. I operated the machine until the explosion oc-

(Testimony of B. S. Pederson.)

curred, I think it was January 23d, or 24th?

Q. The 26th?

A. No, there was one besides that. There was one a day or two earlier than that, and we stopped operations at that time.

Q. For what purposes were the operations carried on?

A. To determine our line of operations when we could make a final test. It is necessary in any gas apparatus to have determined what proportion, for example, of oil and fuel you are to use, and steam and air, in order to have a balanced [405] perfect machine under ideal conditions.

Q. Did you complete your experiments at that time? A. I did not.

Q. What interrupted them? A. The explosion.

Q. What was that explosion.

A. It was an explosion in the gas company's main air line from the air pump or blower, as we call them, to the different apparatus at the works, including ours. The explosion occurred out in the yard and tore the pipe apart. In our immediate building where I worked and where their air line is also located leading to our machine, the explosion had an effect of drawing the pipe in, as though there had been a vacuum out on the line somewhere, and sucked the pipe until it collapsed.

Q. It was no part of your apparatus?

A. No, sir; no damage to our apparatus at that time.

Q. After that incident or interruption of the ex-

(Testimony of B. S. Pederson.)

periment, did you remain here? A. No.

Q. When did you next come on the ground, and what was the occasion of it?

A. I don't remember whether I was here between that time and the final test or not. I left here and made a trip north—I am not able to state just now without having something to refresh my mind whether I was here or not. I was making so many trips in and out, that I am unable to say exactly.

Q. By whom were you summoned or notified to attend the last test.

A. I got here on the summons of Mr. White.

Q. Were you delayed in transit?

A. I was up in Washington and Oregon at that time. [406] There was some floods that delayed me there, and I think I wired that I was delayed. I may have wired to Fort Wayne or to White, and I don't remember which. But, at any rate, I was delayed there. And in getting to San Francisco, I was further delayed there because the coast line was out of commission and the valley line was also tied up. I think I was delayed in San Francisco two days—one day delayed and the other day I couldn't get accommodations to get down here.

Q. And when you did arrive had the test started?

A. Yes, sir.

Q. What day did you arrive?

A. I think it was the 12th.

Q. What was the condition of the fuel that was being furnished at the time you arrived?

A. At the time I arrived the fuel was in what I con-

(Testimony of B. S. Pederson.)

sidered a rather poor condition, in the fact that it was creating a great deal of dust and crumbling with very slight handling.

Q. And you took charge of the night shift?

A. I did.

Q. What hour did you get to work?

A. I think on my arrival. I think I went to work right away and worked right through till next morning.

Q. What were the usual hours?

A. From six o'clock in the evening till six in the morning.

Q. Do you know whether the bricks sent you at that time were kiln-dried or not?

A. Yes, I think I did know that. That is, I was not informed about that to that effect, but I could see them kiln-drying them, and the natural presumption would be that they were those bricks, and I knew they were furnishing those bricks.

Q. What were the appearances? Were they a hard looking [407] substantial brick, or otherwise?

A. You could see fissures in them at all points, particularly longitudinally. These fissures were so wide and open that it would be a matter of very little difficulty in tearing the bricks apart.

Q. But were the bricks capable of such handling as was necessary to put them in the fire?

A. They were not, and remain in anything like—

Q. Describe the charging apparatus with respect to its feasibility for handling the fuel?

(Testimony of B. S. Pederson.)

A. I considered that charging apparatus to be rather a convenient affair if the fuel was of the proper consistency. The wagon would drive up with this fuel over a pit—straddling the pit—and the driver would take off the sides and take off the scantling bed, and the bricks would drop down in a mass, one on top of the other, a drop possibly four or five feet. Then from there it would pass into what would be called a skip. By the raising of a door at the bottom part of this container; the drop there was not very severe. It was just a matter of two or three feet. Then it was hoisted to the top of the building, and the skip or bucket was tipped over and the bricks allowed to shoot down into the upper bin and collect there ready to be discharged into the generator through another spout which was also built on an incline, and afforded a slide to the generator.

Q. Have you handled these lamp-black bricks in various forms to any extent in your experience?

A. During my experience here I have handled a good many of them.

Q. Have you ever seen material dried first and then bricked? A. To ten per cent?

Q. Yes. [408]

A. I have seen them to this extent: That I made brick myself on a little hand-press with lamp-black containing 4 per cent moisture, and made a fairly substantial brick, although not of the thickness of the bricks used here. That was because of the apparatus that I had to experiment with. It was just one of these little hand-presses that they have in a brick-

(Testimony of B. S. Pederson.)

yard. But the brick I considered was fairly substantial. With a power-press I would say there was no difficulty at all to make a brick with a less percentage of moisture. My observation and what I have learned from other sources, confirms me in that statement, and my general knowledge of the material.

Q. Have you also handled bricks that were made from materials that were moist and then bricked?

A. Yes, sir.

Q. Moist to an extent greater than 10 per cent, and air-dried? A. Yes, sir.

Q. Have you also handled bricks that were made up and then kiln-dried or fire-dried? A. I have.

Q. Is there a difference in their consistency?

A. There is. The sun-dried brick if it is properly made has a slower evaporation of the moisture contained in it than the kiln-dried brick, and in the evaporation of the sun-dried brick it seems that the binding material sets harder, whereas in the kiln-dried brick the moisture being driven out at a rapid rate, seems to disintegrate the brick to a certain extent, and possibly also drives off a part of the binding material, so that the brick is not nearly so substantial if it is kiln-dried as if it is sun-dried.

Q. What is this binding material that you refer to?

[409]

A. It is a portion of tar and the lighter hydrocarbon.

Q. Having in view your knowledge of the bricks made in these different ways, those that are substantial and those that are unsubstantial, I will ask you

(Testimony of B. S. Pederson.)

again if in your opinion the apparatus furnished there or installed there for the purpose of handling the fuel into the generator would have handled it in proper manner if the fuel was properly made and was a substantial brick? A. It would.

Q. But with the material furnished during this test—the kiln-dried brick—did it so handle the fuel?

A. It did not. By the time the bricks went through this process or being put in the skip and raised and slid down, it was disintegrated to the extent that at least twenty-five or thirty per cent of it became actual dust, and that dust sifted through the slots that we had in the chute, and these slots being made naturally with spaces of iron between them—that is, a slot and a space of iron and then another slot—and the slots being an inch and a half in diameter and the strip of iron about two inches, about half of the surface of the slot would allow the dust to go through, and through these apertures twenty-five or thirty per cent of the brick would go through in the form of dust. Now, on this other part where the slot was not made, there was always a quantity of dust that we could not get rid of because we did not have a shaking apparatus on that part which would have helped sift it through, and it slid through—the portion that happened to be over the slot would go through, and the rest would go into the machine.

Q. Can you give us an idea of how much fine dust went into the machine?

Q. (By the COURT.) What observation did you make? [410]

(Testimony of B. S. Pederson.)

A. I was on the floor—not continuously, but off and on during the entire time—and possibly seventy-five per cent of the time that we charged that machine. I wasn't there all the time. But every time we charged the machine we would be over there and looked in there and saw the material come down and we would observe the condition of the floor.

Q. And you did that?

A. I did that. I would say from my observation practically as much dust went into the machine as was sifted through. About the same proportion.

Q. Did this dust or fine material evidence itself at any other place than going down the chutes and going through the slots?

A. It evidenced itself in going over into the carbureter and chamber, and gathering there.

Q. Is there a means provided for taking the dust that passes over—

A. There is a means provided for taking it over; for taking it over in such quantities as you could reasonably expect that it would come over.

Q. And is there a means provided for taking it out from there? A. Yes, sir.

Q. Did you ever see any of it removed?

A. I have seen a great deal removed.

Q. How often during a shift did they remove it?

A. Once. We would remove it every time we cleaned the generator. That is, scratched the bars. That is the only cleaning that was required on the generator. We would open the generator and then go around and remove that carbon-dust.

(Testimony of B. S. Pederson.)

Q. What was done with it?

A. It was put with the waste carbon from the bottom under the grate-bars, and they would weigh it and cart it away. [411]

Q. And was track kept of it? A. Yes, sir.

Q. And is that a part of the waste mentioned on these cards which has been deducted from the total carbon? A. It is not.

Q. Do you know what the material was that passed over into the carbureter and was removed from that chamber? A. It is principally carbon.

Q. How about that that was removed from under the grate-bars?

A. That would have a certain proportion of ash in it or dirt. It is not really an ash. It is really a dirt, but it answers to the name of ash—proportion to the ash in the fuel originally placed in the generator.

Q. That was all removed and wheeled away and turned back to the gas company?

A. It was turned back to the gas company, yes. They hauled it away.

Q. When the fuel was porous, did you notice any increase of those deposits? A. I did.

Q. To what extent?

A. Different qualities of the same fuel each day, and some days it would be abnormally bad, and we would get more of this dust over. But just to what per cent I would not be able to say. It would be, I should judge, about the same per cent that the waste carbon would show to the carbon delivered. It would approximate the same.

(Testimony of B. S. Pederson.)

Q. Have you got a memorandum of the weights of the quantities of that material that was removed during the test?

A. I haven't here. Perhaps I have. Yes, I have some here. [412]

Q. Do you know who weighed the stuff?

A. The same men who weighed the carbon furnished to the machines. I think it is in evidence. It is on these cards.

Q. Are the weights the same as mentioned on these cards? A. I would have to compare.

Q. But were the weights turned into you or Mr. White?

A. None of these weights were turned into us. We secured these weights by examining the cards and inquiring.

Q. Was this date made up from the records furnished you?

A. It was made up from the records that were given to us.

Q. How long was the machine in operation after you arrived here on the 12th?

A. Two days, I think.

Q. And what happened at the expiration of the two days?

A. We shut down the plant to clean out the carbureter, and to determine what the difficulty was with the machine. It was not properly balanced. We didn't seem to have it properly balanced at the time, and I closed it down as we found that one trouble was with the carbureter.

(Testimony of B. S. Pederson.)

Q. What led you to believe there was trouble in the machine somewhere?

A. The blast acting on that fire didn't seem to go through the fire and didn't seem to come out through the superheater—the blast would be a lazy blast. There should have been a nice clear blast through the machine. Instead of that, in the stack valve it showed a very lazy flame—the red blast of the gases—indicating that the stoppage must be there in the generator itself or some other part of the machine.

Q. Did the variation in the make have anything to do with indicating that there was some defect?

A. Oh, yes; that would also indicate it. [413]

Q. In what regard?

A. In the make falling down it would indicate that there was generator trouble.

Q. And after you shut down what did you discover?

A. We discovered that the trouble was in the carbureter and that it was blocked up or choked up with carbon and carbon dust.

Q. Do you know where it came from?

A. There is only one place it could come from, and that would be the generator, and, partly from the oil sprays. The oil coming in contact with this dust would apparently form a cake in there, and fill down to the openings between the brick and close them up. They would adhere to the side and gradually close them up.

Q. Do you know what caused the dust to be blown over into the carbureter?

(Testimony of B. S. Pederson.)

A. By the air blast which was applied to the generator to consume fuel.

Q. Did the condition of the fuel that was passed into the generator have anything to do with it?

A. It had everything to do with it. The fuel coming in there in the form of dust, and this dirt picked up by this blast and carried over to such an extent that it filled up the carbureter with dust.

Q. Do you know whether the carbureter was clean when you started or not? A. I do not.

Q. Was there anything in the fact that it clogged up so soon that would indicate whether it was or not?

A. There is. I would say that the machine was not cleaned to start with, or it would run more than three days before clogging up. [414]

Q. After you closed down, to what extent did you find the carbureter clogged?

A. Wholly so. It was a problem to me how any gas got through when we opened it up and looked in. It seemed to be completely closed up.

Q. What effect did the deposit of this dust on the carbureter bricks or fire bricks have upon its efficiency or ability to make gas—oil-gas?

A. It ruined the capacity of the machine, so far as making oil-gas.

Q. Why?

A. It did not have the surface in there to gasify or vaporize the oil. The only opportunity there was for any of this oil to become mixed with gas under those conditions, would be that the oil would be picked up by the gas coming from the generator and

(Testimony of B. S. Pederson.)

gasified in that respect. The body of the carbureter itself did not seem to do any of the work that it was supposed to do.

Q. In order to get efficiency in the fire-bricks in the carbureter, should they be reasonably clean?

A. Yes, sir, they should be entirely clean.

Q. How high are they heated?

A. They are raised to a temperature of 1200 degrees.

Q. Does the coating on the checker-bricks have anything to do with the absorption of heat?

A. Yes, sir. It nullifies the effect of the heat. Just like when there is a coating on the carbon and it would become hot. The immediate contact of oil or spray would cool it off. It is not a good conductor of heat. It would contain this small volume of hot carbon on the outside and immediately cool off.

Q. After you closed down the machine what did you do? [415]

A. We removed all the bricks in the carbureter and replaced them with new ones.

Q. How long did that take?

A. Something over two days and nights, working night and day.

Q. What time in the morning or day did you shut down?

A. We shut down about eight o'clock, I think it was. Between seven and eight o'clock in the morning that we closed down.

Q. (By the COURT.) That was the 12th.

A. That was on the 14th.

(Testimony of B. S. Pederson.)

Q. (By Mr. CHAPMAN.) How much gas did you make that day that you closed down?

A. I think about 70,000 feet.

Q. Did you put any fuel into the machine that day?

A. No.

Q. How did you happen to make any gas on the day that you shut down?

A. For the reason that it was customary to run through from cleaning to cleaning. For example: in the evening we usually clean about seven or eight o'clock. It seems that a shift of men came on about that time—perhaps at seven o'clock—but that conforms to their usage as to the work, and we either had to start—I wanted to get through to the next cleaning, and we ran over the six o'clock hour and went to 7:30.

Q. Then, you say you occupied the next two days or part of the next two days in the work of re-checkering? A. Yes, sir.

Q. What time did you complete the work?

A. The work was completed, so far as the checker-brick is concerned some time in the afternoon while Mr. White was in [416] charge. I put on the doors and closed up the carbureter during the evening, and I started up about three o'clock in the morning or about that time.

Q. Did you make any gas that day? A. Yes, sir.

Q. How much?

A. Just a small quantity. I don't recollect the exact amount. I could possibly refer to that. 107,000 feet. About an hour's run.

(Testimony of B. S. Pederson.)

Q. Now, in the course of re-checking, was there a shift engaged night and day? A. Yes, sir.

Q. And the work was prosecuted with as much expedition as possible? A. Yes, sir.

Q. And after you built up your fires and started to make gas the next day, what kind of fuel did you have?

A. The fuel was poor. We found considerable dust coming with it, and began to have fire trouble. We didn't seem to be able to get fuel for any length of time that we could depend on at all. Occasionally they would give us a load that was fairly good—better than the other fuel. But we found it was in poor condition generally.

Q. Then on the 18th, the day that the protest which was offered in evidence was made by Mr. White, what kind of fuel did you have?

A. Just about as bad as they could make it, and have any form at all.

Q. Did it improve any after the protest?

A. After the protest we had a few loads of a little better brick, and about the time we would think we were getting the fire along in a little better shape, they dumped a lot of [417] this other stuff, and it ruined our fire again.

Q. What appearance did the fire have?

A. At what time?

Q. I mean when you had this very bad fuel?

A. Immediately after a change, naturally the fire would appear black on top, and the lumps of brick would be spread in there. But after a few runs it

(Testimony of B. S. Pederson.)

would get a reddish appearance and look something —you might say like cobbles with a lot of sand between them, dancing up and down there in the blast.

Q. How did it appear in comparison with the way it ought to have appeared and customarily does appear when the fuel is in proper shape?

Mr. GOUDGE.—Objected to as calling for the conclusion of the witness, and on the ground that no foundation is laid for it. On the contrary, the witness testified that he did not have any experience with this fuel except here.

The COURT.—The objection is overruled.

(The plaintiff excepts to ruling of Court.)

A. Ordinarily, a fire in a generator, using coke would have a bright and rough appearance. The lumps would show distinctly in there and you could see the blaze and heat coming through. It would be one porous equalized fire. That is, the fire would be apparently throughout the mass.

Mr. GOUDGE.—I move to strike out as not responsive to the question, and his answer discloses that the witness is not able to say how a carbon fire ought to look, because he has no experience with carbon fire, and he himself has admitted it.

The COURT.—He had a great deal with coke.

Mr. GOUDGE.—Yes, but he should not be permitted to say what coke looks like in answer to a question as to how a lamp-black fire ought to look. He doesn't know how a lamp-black fire should look.

[418]

Mr. CHAPMAN.—He has explained that they are

(Testimony of B. S. Pederson.)

precisely the same thing. Coke is carbon and lamp-black is carbon and anthracite is carbon.

The COURT.—The objection is overruled.

(Plaintiff excepted to ruling of the Court.)

Q. (By Mr. CHAPMAN.) Did you have any trouble with holes blowing through the fire and black spots appearing?

A. We did. That is a condition that will occur with fuel of that character. The blast will work on one spot and may find one opening. It is always working to find an opening through the pile, and after it has obtained an opening it will blow that place clean of dust for a time and it will make an aperture for the steam to come through. The steam follows the same course. Then, naturally, the surface being small and the quantity of steam large, it quenches the fire at that point and develops what we call a black spot in the fire. When that does appear, it means that we are passing great quantities of steam through an opening but not getting the efficiency of the machine or the fuel. It is a condition that must be remedied immediately. As soon as the black spot is observed we remedy it by trying to pour more fuel in, and closing it up and diverting the steam to other parts of the fire.

Q. How is that black spot discovered?

A. When we open to charge. Every time we charge we open and see the condition.

Q. Don't you also have sight holes?

A. Yes, we have them in the generator, but as a general thing they are not used much, but they are more

(Testimony of B. S. Pederson.)

used in watching the temperature of the carbureter and superheater. There we use sight holes very extensively. But we open the generator [419] once an hour, anyway, approximately, to charge, and while occasionally you may look down a sight hole, it is not used as a general thing.

Q. After the protest of the 18th, you say there was some little improvement in the fuel at the time?

A. Yes, sir.

Q. How long did it continue?

A. It didn't continue. After the protest I think there was something said about giving us different fuel, and they did give us some different fuel for a short time. But it gradually became worse and worse, and while they would shoot in a load of a little better fuel, the general conditions were not much better than they were before—the average condition.

Q. Now, on the 23d, the day it appears when that protest was again entered against the quality of the fuel, what was the character of it on that day?

A. If anything it was worse than it was on the 18th.

Q. Did you have any hot fuel on that day?

A. Yes; we had hot fuel on that day and we had hot fuel on the 18th. That is, it was not hot, but it was warm. I remember taking up some of the bricks myself and they were actually warm, and I could squeeze them like that and they would fall apart. It seems the characteristic of the fuel was that while it was hot it had a tendency to fall apart by its own weight, almost, or at the slightest touch.

(Testimony of B. S. Pederson.)

Q. How was it when the bricks were warm rather than hot?

A. I will say these were not really hot; they were warm.

Q. You are referring to warm brick?

A. Yes, sir.

Q. Does the warm brick fall apart as you have described it?

A. Yes; it was a warm brick that I took hold of. It was not a hot brick. [420]

Q. To what extent were those bricks delivered there?

A. I should say at that time probably 50 per cent of the bricks delivered were these freshly heated bricks, or not cold bricks, but warm bricks.

Q. Do you know how they were heated?

A. Yes.

Q. How?

A. They were kiln-dried. That is, they were placed in a pile somewhat in the manner that bricks are placed to be baked, and a fire built in an oven that was constructed of these same bricks, and the heat from the fire penetrated the openings surrounding the bricks. The fire was made of lamp-black right there on the ground.

Q. Did you observe any burning or heating of the kilns across the street?

A. I did, just casually, though. I didn't go over to examine. I was there at night, and I came over once or twice.

Q. Did you see any smoke?

(Testimony of B. S. Pederson.)

A. A great deal of it. The smoke resulted from the lamp-black that they were burning in the opening of the kilns, and possibly some of it may have been hydrocarbons driven from the brick that they were drying.

Q. Would you recognize a representative sample of the character of brick that you were using at that test, if you saw it? A. I think I would. [421]

[**Testimony of E. C. White, for Defendant.]**

E. C. WHITE, called on behalf of the defendant, being first duly sworn, testified as follows:

Direct Examination.

(By Mr. CHAPMAN.)

Q. You are Mr. White referred to in the course of the testimony as one of the operators who had charge of this test? A. Yes, sir.

Q. After the test was completed, did you take any sample of bricks from the piles from which deliveries had been made during the test? A. I did.

Q. Did you select that at random or did you make a special selection with a view of showing poor condition of fuel?

A. I selected an average brick off the pile.

Q. What did you do with it?

A. I wrapped it up in a paper—that especial one—and tied a string around it.

Q. And labeled it? A. Yes.

Q. From what place did you get the brick?

A. In the place across the street from the water-gas set.

(Testimony of E. C. White.)

Q. And, after procuring the brick, what did you do?

A. I wrapped them up and put them all together and put them in a grip and placed them in the Braun Chemical Company's warehouse, with the chemist.

Q. And they have been there ever since?

A. Yes; those that have cans on were soldered up at a tin shop.

Q. And sealed or tied? A. Yes, sir. [422]

Q. I direct your attention to this brick in this can and ask you if that was one of them that was selected?

A. It was.

Q. Can you tell when that was selected?

A. It is marked on the paper that I took off.

Q. Is this the paper that you refer to?

A. Yes, sir.

Q. And referring to that, can you state the time when you selected the brick?

A. May 27, 1910. A brick taken from the yard of the L. A. Gas and Electric Corporation, 4½ pounds, kiln-dried, taken 5-27-1910 by E. C. White.

Q. And this brick also you placed in the possession of Mr. Maas the chemist? A. Yes, sir.

Q. And it has been there ever since till within the last few days?

A. Till I saw them out here at Mr. Trippet's office. I don't know who brought them up.

Q. When was this can opened?

A. It was opened just now. I took it out on the step where I could bear down on it.

Q. Has it been opened at all during the time from

(Testimony of E. C. White.)

that time up to this time? A. No, sir.

Q. It has been sealed all the time?

A. As far as I know.

Q. Would you say it was an average sample of those delivered to you during the test?

A. Yes, sir; I took average samples. They are all about alike.

Q. Did you ever test any of these bricks as to their tensile strength, by handling them? [423]

A. Yes, sir; I have handled them.

Q. Are they easily broken or otherwise?

Mr. CHAPMAN.—We withdraw that question.

Cross-examination.

(By Mr. GOUDGE.)

Q. Mr. White, both these bricks that you speak of that are produced here, were taken by you on the same day?

A. I would have to look at the paper to see that. I don't think so. This brick was taken on May 14th.

Q. That is, the one in the paper and not in the can? A. Yes, sir.

Mr. GOUDGE.—Are you going to put in any more bricks?

Mr. CHAPMAN.—Yes, I would like to identify this package that I now hand you.

Q. State what that is and whence it came.

A. This was made after the test or taken after the test; fresh, just made, a lamp-black brick taken at the gas company's press, of the Los Angeles Gas and Electric Corporation, May 27, 1910. Five pounds weight.

(Testimony of E. C. White.)

Q. I now direct your attention to this second package that I show you. Please state what that is.

A. Two bricks, samples taken from L. A. Gas and Electric Corporation's yard, between March 10th and 30th, 1910. These bricks were selected and are well filled out. Most of the bricks have their ends knocked off, caused by the dies being worn, and moulds not being properly filled.

Q. (By Mr. GOUDGE.) We have four different specimens here, Mr. White, and the one that I will designate as wrapped in paper— [424] the first one spoken of which was taken on May 14th, and one that was in the can which was taken on May 27th?

A. Yes, sir.

Q. One package containing two bricks during the test? A. Yes, sir.

Q. From the piles?

A. No, from the—yes, sir; these were taken from the yard across the street. I am not sure whether they are sun-dried or kiln-dried, but they are well filled out. They were made with the new dies. I think they are a fresh brick because no kiln-dried brick were made with the new dies. They got a new set of dies and I took the bricks to show the difference between the new and the old.

Q. The package that contains the two bricks together with the new bricks made at that time?

A. Yes, sir.

Q. And the fourth is also a fresh brick taken freshly from the press, but that was taken May 27th, 1910?

A. Yes, sir.

(Testimony of E. C. White.)

Q. As to those two last specimens, the one taken fresh from the press May 27, 1910, and the package containing the two which were new bricks, those are not a part of the bricks that were being furnished to you during the actual test—not a part of the brick furnished you at that time? A. No, sir.

Q. Then, eliminating them, we will come back to the brick in the paper and the brick in the can. The brick in the paper was taken May 14, I understand you, and the brick in the can May 27. Is that right?

A. Yes, sir.

Q. Were they taken from piles from which brick had been [425] delivered to the generator during the test? A. Yes, sir.

Q. What portion of the piles were they taken from? Had they been subjected to artificial heat?

A. Well, the piles had been subjected to artificial heat.

Q. And the brick in the paper, taken May 14, selected by you May 14, and the brick in the can selected by you May 27? A. Yes, sir.

Q. What part of the piles were bricks taken from, whether outside of the piles or the side of the pile next to the fire, or the interior of the pile or the side away from the fire?

A. I can't tell you that. I just walked in there and reached over and got one.

Q. Were these piles under cover at the time you got these bricks? A. No, sir.

Q. Do you know whether between March 30th, 1910, and May 14th or May 27th, 1910, it had rained

(Testimony of E. C. White.)

in this city? A. I don't remember.

Q. Do you know whether subsequent to March 30, 1910, these bricks had been subjected to artificial heat—whether the fire had been kept up near these bricks since that time? A. Since the 30th?

Q. Yes, of March.

A. I think all the fires were out on the 30th, if I remember correctly.

Q. Do you know whether any new firing had been done to these brick—the one in the paper and the one in the can—subsequent to March 30th and prior to the day you took them, or had they been left cold?

[426]

A. They had been left cold. There was no fire there.

Q. During all that period from March 14th to May 27th?

A. There may have been a little fire subsequent to March 30th, but it was immaterial if there was. It was so small. I think they endeavored to let the fires go out. They had no reason to keep up the fire.

Q. You say these two bricks were not selected as either favorable or unfavorable, but were average samples of the kind of brick furnished you during the test?

A. Yes, sir; it would have been hard work to get any that were better or worse than that. They were all about the same.

Q. They were tolerably uniform?

A. Yes, sir.

Q. How long an acquaintance did you have with

(Testimony of E. C. White.)

the brick in the piles that you are able to say these are uniform samples? What prior investigation and for how long a time had you been familiar with the bricks in these two piles?

A. During the test.

Q. And you knew nothing of them before that?

A. I may have seen them there; yes.

Q. How long before?

A. From the time I arrived. I arrived on December 9.

Q. And these were the same piles that had been there?

A. They were the same piles. They had not moved any of them away.

Q. That is, these represent the kiln-dried brick?

A. Well, the sun-dried bricks were re-piled in kilns, in a convenient manner, and kiln-dried.

Q. Are these sun-dried bricks?

A. Sun-dried and then kiln-dried afterwards.

Q. How do you know they were sun-dried? [427]

A. Because they had been in the yard from the time I got there. At least, till they commenced to put the kilns in.

Q. The time you got there was December 9?

A. Yes, sir.

Q. You don't mean they were sun-dried since December 9, do you?

A. They were sun-dried from December 9 until the time they were kiln-dried.

Q. Sun-dried?

A. What does "sun-dried" mean? It means laying out in the sun.

(Testimony of E. C. White.)

Q. Do you know how much sun there was during that time? A. No, sir.

Q. You know there was a good deal of rain, don't you?

A. There was some rainstorms, but I don't know how much rain. I paid no attention to it. These bricks were covered up when it rained.

Q. How long does it take to sun-dry such bricks as these?

A. I don't know that there is any especial process—

The COURT.—Wouldn't it be well to postpone questions of that character until he is called generally?

Mr. GOUDGE.—Yes; but may I ask one or two questions?

Q. When you speak of these bricks being sun-dried, did you mean to imply that in these piles from which the bricks were taken and delivered to you during the test, there was some bricks that were sun-dried and some that were not sun-dried, or were they all of the same character?

A. I mean to say that there was great piles of bricks there on December 9th, and they stayed there until they commenced to kiln-dry, and they had a big lot of Mexicans there and rearranged the whole pile, but they brought none in and took none away that I saw. [428]

Q. So, if they were sun-dried, they were all sun-dried? They were of the character of bricks?

A. I can't say, unless I made an analysis of them;

(Testimony of E. C. White.)

I couldn't say what percentage of moisture they were. I would say that the ones on the outside were drier than the ones on the inside.

Q. Can you say whether this break in the corner occurred as you opened the can just now?

A. I think this little break did. Yes, sir. I put it down and held it near the floor, and some of it dropped off. You can see it out there.

[**Testimony of B. S. Pederson, for Defendant
(Recalled).]**

B. S. PEDERSON, recalled and his Direct Examination resumed.

(By Mr. CHAPMAN.)

Q. I direct your attention to the two bricks identified by Mr. White as coming from the pile from which the brick were taken that were delivered to this machine during the test, and ask you if those bricks appear to be in the same condition in a general way as the average brick that was delivered to the machine?

A. This brick here appears to be harder. This one here seems to be more substantial than the other.

Q. Do you observe the fissures or cracks?

A. I do, but the general condition of it by being exposed has become considerable harder. It is a longer time since it was kiln-dried. There is an atmosphere process of—

Q. I notice this brick appears to have chips out of it. Do you know whether the fresh bricks that were delivered there showed holes in them or chips out? [429]

(Testimony of B. S. Pederson.)

A. A good many of them did. We noticed that they were not perfect brick. But I did not attribute that to any particular cause. I think it was caused largely by handling the brick in getting them over there.

Q. (The COURT.) Are there any fissures in this brick? You speak of some brick having fissures in it.

A. Here.

The COURT.—That is what you mean by fissures? Can you make any impression on that brick with the finger?

Mr. EDWARDS.—This is as hard as I can press.

The COURT.—It does make that impression.

(Mr. Edwards taps the end of the brick with a pencil or penholder.)

Mr. EDWARDS.—That gives an idea.

Q. (By Mr. CHAPMAN.) You heard some mention made in the testimony of Mr. Creighton and Burkhart of a leakage in the generator. Was there a leak there?

A. There was.

Q. Did it give any particular trouble during the test?

A. Well, it didn't give any particular trouble so far as the operating was concerned or the running of the apparatus. It was a little inconvenient for the men who were operating to have this leakage there. I wouldn't consider it an ideal condition for a man to work in, but it was a condition that could be remedied with very little trouble. Another thing

(Testimony of B. S. Pederson.)

is, a great deal of what they thought was leakage was not really leakage, but it was a condition that was caused by the fact of this fine dust coming from the chute on the floor and sifting down between the floor plates and filling up on the generator and becoming heated, so that hydrocarbon gases were driven off. I have seen them catch fire from the heat that naturally comes from the top of the generator, and that would cause a great [430] deal of smoke, and I considered that caused really more inconvenience than the leakage around the generator.

Q. Was there any gas that came from any other source during the test at any time that disturbed the men and made it objectionable around there?

A. Not gas. It was the smoke coming over from the kiln that inconvenienced the whole works in the whole neighborhood. I wouldn't call that gas. It was in the nature of smoke.

Q. Was there any leakage from any of the other generators belonging to the company that disturbed the men?

A. I didn't go around very much. I was on duty at nights and didn't have much opportunity to investigate the other parts of the works.

Q. How about that valve that Mr. Creighton mentioned as becoming hot or inconvenient to operate?

A. That is one of our standard valves, and with conditions of operations correct, it would give no difficulty whatever, and it did not give any difficulty until the carbureter being clogged with this fuel

(Testimony of B. S. Pederson.)

and carbon would react on the gases coming over and causing a back pressure there that hit against the valve. It was really on the outside of the apparatus, but this back pressure and reflected heat would hit the valve, but never to such an extent that it would not operate. We never lost a minute in the operation of all apparatus on that account at night, and so far as the reports show there was no interruption in the day-time either.

Q. How about the grate-bars that they complain set the other way?

A. That is largely a matter of opinion. If the fire was of such a nature that it contained a great many clinkers to spread over the grate bars, it might have been more convenient [431] to have the bars so placed that we could scratch up under the bars, than to have them stretched across. But that fuel having so little clinkers, it is a negligible factor. It does not matter which way you place them, although it would not have been a great deal of trouble to turn it around to suit the gas company.

Q. How about the machine as a whole? Was there anything that could not have been rectified so that the apparatus could be put in working order by the expenditure of money after the test was completed?

A. The machine was in absolutely right and good condition in every respect, with the exception of the little link in the top of the generator, and a new valve which we had already figured on putting into the blast valve in place of the temporary one that

(Testimony of B. S. Pederson.)

we put in there, and possibly straightening up the brick in the superheater.

Q. During the test did you know that there were any bricks down in the superheater?

A. I did not. I didn't notice them at that time.

Q. Do you know when that occurred?

A. I do not.

Q. Or how it occurred?

A. I can only theorize. I did not see the brick myself that were down. I didn't go on top to look down to see if there were any down.

Q. Do you know of your own personal knowledge whether any offer was made by anybody on behalf of this company to Mr. Luckenbach or any other officials of the gas company to place this machine in proper condition if they would accept it or grant you the privilege of another test?

A. I know of that offer being made.

Q. To whom was it made? [432]

A. To Mr. Luckenbach, but not by me.

Q. Were you present? A. No, sir.

Q. How about the charging floor? Was there anything wrong about the charging floor?

A. Nothing wrong with the charging floor as a charging floor. Operating floor, you mean, I think.

Q. Operating floor.

A. The floor was by reason of the generator top expanding, raised a certain distance to that it was not absolutely level; but the correcting of the generator top would correct that. And correcting the generator top meant placing a couple of I-beams across

(Testimony of B. S. Pederson.)
there to strengthen it.

Q. Before this test was finished, that is, before the 20 days expired, during the last day or two particularly, the machine showed a falling off in the make? A. Yes, sir.

Q. Do you know what the reason for that was?

A. The reason was fuel conditions that we had in the generator, and towards the last that reacted on the carbureter, so that we had abnormal conditions in both machines.

Q. If a substantial brick of this material had been furnished for your purposes during the test, could the machine have been operated continuously to the end of the time of the full 20 days?

Mr. GOUDGE.—Objected to as calling for the conclusion of the witness, and also that it is irrelevant and immaterial, the contract not calling for substantial brick or any brick different from the brick actually furnished.

The COURT.—That involves an interpretation of the contract. I will let the evidence come in at this time. The objection is overruled. [433]

(Plaintiff excepted to ruling of the Court.)

A. Yes, I think it could.

Q. From your knowledge of the operations of plants of this kind, and especially your observation of the conduct of the carbureter, do you know what the effect would have been as to keeping it clear under ordinary conditions—under normal conditions—if the machine had been laid off once a week during this period of the test?

(Testimony of B. S. Pederson.)

Mr. GOUDGE.—Objected to as irrelevant and immaterial.

The COURT.—Isn't that quite material as tending to show whether or not—isn't this important, whether or not under ordinary usages they should have been allowed one day a week to stop the machine for the purposes indicated?

(Discussion.)

The COURT.—The objection is overruled.

(Plaintiff excepts to the ruling of the Court.)

A. Starting with a clean machine and having fuel conditions in accordance with the proper practice of water-gas making, there would be no difficulty in keeping that machine clear by using one day a week, for an indefinite time I should say.

Mr. GOUDGE.—I move to strike out the answer as not responsive to the question. He puts in a good many other contingencies. For instance, having ideal fuel.

Mr. CHAPMAN.—He said normal conditions.

The COURT.—I will let the answer stand.

(Plaintiff excepted to ruling of the Court.)

Q. (By Mr. CHAPMAN.) Are you able to state, Mr. Pederson, from what you know about this apparatus and gas-making generally, whether the machine could have been kept clean during the period of 20 days operation, even with the fuel that you had and under the conditions that you had if you had been allowed and had taken [434] one day a week for cleaning out?

Mr. GOUDGE.—The same objection.

(Testimony of B. S. Pederson.)

The COURT.—The same ruling.

(Plaintiff excepted to ruling of the Court.)

A. I think that we could have kept it clean, beginning with a clean machine, and burning out one day a week, even under the conditions that we were operating under at that time.

Q. If that had been done with the fuel that you had, would you have gotten the efficiency of the plant?

A. That is another question. I hardly think we would have gotten the efficiency with that fuel, though we might have kept the machine clean, for the reason that we were not able to get our fire in a condition to make the amount of water-gas.

Q. Did you have any talk with Mr. Luckenbach on the subject that if they furnished you brick containing more than ten per cent moisture during the test, that you should be allowed credit in the fuel consumption for the excess weight of water?

A. I did have such a conversation with him.

Q. Was it before this test? A. It was.

Q. About how long before the test, approximately?

A. Well, it is difficult to say whether that was during the time I was there at that explosion test, as you might call it, or the time before that. It was sometime between the last contract and the test. Just what date it was I don't remember, but the conversation was held in his office. And, in explaining to him why we wanted dry fuel, I said, "You must realize that if you take a fuel with twenty-

(Testimony of B. S. Pederson.)

five per cent moisture or fifteen per cent moisture and put it in a fire, you are just throwing that much water in the generator and being charged with fuel. Now, then, it takes not only that much fuel, but it takes so much more fuel to drive that out and bring the generator [435] back into condition. That if we should accede to your request and suggestion that we use fuel with some moisture, will you give us credit for that extra moisture?"

Q. What did he reply?

A. They refused to consider that. Then I think the matter came up of demanding dry fuel, and I wrote a letter to that effect, countermanding Mr. White's letter asking for fuel with more moisture. It may have been between those two letters, but I am not positive as to that.

Q. Where is the candle-power or luminosity of gas made and provided for in the operation?

A. In the carbureter.

Q. Will you explain how that comes about?

A. The luminosity of gas is caused by the injection of oil into the carbureter. The gases coming from the generator combine with the vapors and gases created by the heat in the carbureter, and this vapor enriches the water-gas or blue-gas coming from the generator. It passes on through the carbureter and is fixed or made a permanent gas in the superheater; part of the vapor passing over there is always gasified.

Q. The water-gas from the generator is not luminous? A. No, sir; it is not luminous.

(Testimony of B. S. Pederson.)

Q. What proportion of the whole gas as it leaves the plant does the gas formed in the carbureter from the use of the oil form?

A. Approximately 30 per cent.

Q. And the lighting power of the gas produced from the apparatus depends entirely on the oil-gas? A. Yes, sir.

Q. Can you regulate the luminosity of gas produced in that manner? A. You can. [436]

Q. In what manner?

A. It is only a question of putting more or less oil. That is one way of regulating. There are several ways of regulating the candle-power of gas. For example, we are making a certain quantity of gas, and it shows a certain candle-power. I want to increase or decrease that candle-power. I can take the oil as the basis of regulation, or I can use the steam as a basis of regulation, or even the blast, in the manner of heating the apparatus.

Q. It is merely mechanical or an expedient of operation?

A. It is an expedient of operation, and depends on the operator largely as to which method should be used. If I were running the apparatus to full capacity of the carbureter—all the oil the carbureter would take—and I would still require a higher candle-power, I would reduce the amount of steam in the generator to conform to the amount of gas that I am making. That is just an illustration of how that would be accomplished.

Q. Do you know where this gas went that was

(Testimony of B. S. Pederson.)

produced by this machine during the test?

A. It passed from the machine to the customary apparatus—seal, scrubber and condenser, into the water-gas relief holder.

Q. And from there was mixed with the other gases produced by the gas company?

A. From there it was pumped through the meter and, I believe, the purifiers into another holder, where it was mixed with other gases.

Q. During the test at any time did you produce candle-power gas in that apparatus?

A. We did, several times.

Q. (By Mr. CHAPMAN.) Why, if you know, did you produce candle-power on an average of 20 instead of 19, as the actual [437] results show?

A. We always make candle-power on a water-gas machine to conform to the requirements of the works for which we are putting in the machine.

(The witness' answer is interrupted by the adjournment.)

(Whereupon an adjournment was taken until 2 o'clock P. M.)

Q. During the 20-day test did you ever have any conversation with any of the Gas Company men down there with respect to the candle-power to be maintained? A. I did.

Q. With whom?

A. With a man who had charge of the photometer reading: Mr. Robinson, I think his name is.

Q. That was the man that has testified here with respect to the fact of his readings of the candle-

(Testimony of B. S. Pederson.)

power? A. Yes, sir; the same man.

Q. Did you talk with him more than once?

A. Yes, sir; a number of times. It seems to be his duty to inform us as to the candle-power.

Mr. GOUDGE.—We move to strike out that statement of the witness.

The COURT.—Let it go out.

A. At any rate, he assumed that duty, and being in charge of that, and whenever there were any variations in the candle-power, he would notify me and tell me, for example, that it was too high or too low to conform to the conditions here.

Q. When he would notify you that it was too high, what would you do?

A. We would regulate our machine so as to bring the candle-power to the point that they wanted it, or at which it was satisfactory to them.

Q. Except for those instructions could you have maintained [438] the candle-power at an average of 20?

A. Without doubt.

Q. Would you have done so without instructions?

A. Without instructions we would have done so.

Q. From your knowledge of the gas-making business and in your studies on the subject and contact with professional men in the business, do you know how the efficiency of an apparatus for making gas of a certain candle power is customarily expressed?

A. I do know. I have myself on several occasions, in testing out apparatus, figured it in the customary terms and so mentioned it.

(Testimony of B. S. Pederson.)

Q. And how is the efficiency in that regard customarily expressed?

A. In the trade it is generally meant the ability of that machine to produce a candle-power or certain rate of light for a certain amount of oil. For each gallon of oil it must produce so much candle-power. In other words, to use the expression that we ordinarily use, the efficiency of the machine is figured on the ability of that machine to produce so many candles or so much candle-power per gallon of oil used. For example, if we use one gallon of oil it would produce so many candle-power in that case. If we use five gallons of oil it would produce so many. The general construction of any contract made on water-gas apparatus is to proportion the candle-power to the amount of oil used. In other words, so many gallons of oil will produce a certain result. Each gallon so many candles, figuring on the basis of a thousand cubic feet measured.

Q. If you say, then, a machine is averaging a production of 20 candle-power gas with the use of five gallons per thousand feet, what is the efficiency?

A. The efficiency would be four candles. If I use four [439] gallons and say 16 candle-power, I would have the same efficiency as if I produce a 20 candle-power on five gallons.

Q. And when, as in this contract, it is said that it would produce 20 candle-power, using four and a half gallons to a thousand feet, what would be the candle-power efficiency?

A. A candle-power efficiency figured on that same

(Testimony of B. S. Pederson.)

ratio would be that one gallon of oil would produce 4.44 candle-power per thousand feet.

Q. Then, if you use four and a half gallons of oil, you would have produced 20 candle-power gas?

A. Exactly.

Q. The water-gas itself, I believe you have explained, has no luminosity?

A. No, sir; no luminosity.

Q. Without the use of oil—

A. Without the use of oil it would have no candle-power.

Q. And the use of oil and the quantity of oil determines the candle-power? A. Yes, sir.

Q. Besides Mr. Robinson did you have any conversation with anyone on the subject as to candle-power you were to maintain during the test?

A. I think not.

Q. Before this test was started did you see that Sugg photometer by means of which candle-power measurements were taken?

A. Yes, sir, some time before. I noticed it.

Q. Did you ever make any careful estimation of it as to the accuracy of it? A. I did not.

Q. Upon what did you rely for the supposed correctness of the instrument? [440]

A. I relied on the statement of the men at the works who had charge, that it was properly adjusted or that the proper correction was made, for the standard candle-power, just the same as I relied upon them when they made the statement that the meter was correct, and that they would have the

(Testimony of B. S. Pederson.)

proper correction for temperature and pressure. It is not a customary rule for the contractor to take into question the apparatus around the works. They are all accepted with the understanding that they are up to the standard, and all calculations and measurements are to be brought to standard or corrected before the figures are admitted.

Q. And if, as a matter of fact, that instrument was not so adjusted as to properly and accurately record the candle-power, did you know that at the time this test was undertaken, at the time you accepted the reading of that instrument as the candle-power observation?

Mr. GOUDGE.—We object to that as argumentative and calling for the conclusion of the witness, and not based on any fact in evidence.

The COURT.—I don't believe there is any testimony as to any defect in the instrument.

(Discussion.)

The COURT.—Let him answer the question.

A. I did not.

Q. (By Mr. CHAPMAN.) Do you know the principle upon which these photometers are designed to operate? A. I do.

Q. State your understanding.

A. The Sugg photometer is—

By the COURT.—The Barr is the standard?

A. Yes, sir. The Sugg photometer is an instrument constructed on the lines of a meter, and designed to register coal gas flowing [441] at a rate of five feet per hour, and making a flame through an

(Testimony of B. S. Pederson.)

Argand burner to the height of three inches. There is an arbitrary fixed point on the meter shown by an indicator—the coal-gas passing at this rate—and at that height of flame as shown by an indicator, the meter running one minute, and arbitrarily marked 16-candle power. In order to distinguish other candle-power, it was necessary for the inventor to use the same gas, flowing at the same rate and the same flame height for one minute, and if the gas was richer—say 17—candle-power—and he had determined on the Barr the point where the indicator stopped, that point would be marked 17. In the case of a poorer gas it would work inversely. More gas of a given candle-power will pass through the same orifice if the candle-power is low than if it is high. That is, for example, coal-gas, it will take more 14 candle-power gas to pass through a meter to make that flame height. If the candle-power is richer it will take less. The flame will be denser, and it will flow through and register a higher candle-power. The index would be inversely to the running of a meter. The more gas you pass through, the lower the candle-power. The less gas, the higher the candle-power shows.

Q. Do all gases of a given candle-power maintain the same height of flame?

A. They do not. There is a marked difference in the different gases.

Q. How does water-gas compare with oil gas with respect to the height of the flame?

A. Water-gas and oil-gas I have not personally

(Testimony of B. S. Pederson.)

determined on the Sugg and on the Barr. But the density of the flame of the water-gas burner is considerably greater than that of the oil-gas burner. In other words, a flame of a certain candle-power from water-gas is not so large as the same flame with [442] oil-gas having the same candle-power. In order to illustrate that—I believe it was also testified here yesterday—in order to get a flame of water-gas to a fixed point, it is necessary to open the orifice or valve more than it is a coal-gas. Consequently in order to get the same flame height with water-gas, you pass more water-gas through the meter. If you are, therefore, passing five feet of oil-gas through a meter and have to open the orifice, you must necessarily pass more water-gas, which would throw the indicator further around and show a lower candle-power than it actually is. Just to what extent that is true on these two gases, I have not made observations on the Barr.

Q. You mean the Barr photometer?

A. Yes, sir. We use the word "Barr."

Q. What would be the effect if you had a Sugg photometer adjusted to measure the candle-power of an oil-gas and mixed gas, or adjusted to measure the candle-power approximately of one or the other or both of those gases, on the accuracy for indicating the candle-power when you put a water-gas in?

A. I say it is impossible to have an accurate reading for the three gases. One of the three gases might be correct. But you mix the gases together or take them separately, they cannot all be correct.

(Testimony of B. S. Pederson.)

Q. If it was regulated to accommodate the flame of an oil-gas and the flame of a mixed gas, would the error be in favor of the water-gas that was passed through it or against it?

A. It would be in favor of the oil-gas.

Q. And against the water-gas?

A. And against the water-gas.

Q. But to just what extent, you are not able to state? A. I am not in a position to say.

Q. Can you state whether or not it would be a substantial [443] error?

A. It would be—well, I won't say how substantial it would be, but from examination of the constituent gases, the water gas having perhaps 27 per cent of carbon monoxide and 17 per cent of methane, whereas the oil-gas has approximately 30 per cent methane and only 11 or 12 per cent monoxide, and these two gases being very close burning, I should judge there is some considerable difference. Whether it would be one or two candle-powers I am not able to say. I know so far as water-gas and coal-gas from my experience with those two gases, they are a matter of four to six candles on a 20 candle-power gas. There would be a difference of that. Another thing, I think if you take a photometer and calibrate it for a 16 candle-power oil-gas it would be necessary to calibrate again for a 17 and 18 and 19, because the proportion would not necessarily be correct for the different candle-powers. It is rather a deep question to go into, because it is an arbitrary standard and it takes absolute tests to de-

(Testimony of B. S. Pederson.)

termine the actual factors.

Q. Should any correction be made for the temperature and pressure at which the gas is passed through?

A. The same as for measurement on a meter.

Q. Do you know whether the Sugg photometer is in general use at this time?

A. It is not at the present time. The principle of the Sugg photometer is such that it is readily adapted to coal-gas, and at the time it was invented there was very little water-gas being made. But since water-gas has become a large factor in the gas manufacture in the United States, it has become obsolete for the reason that it is not adjustable to the two gases. I have in my experience only seen two or three, and they have usually been out in the shop somewhere—put away and not in use. [444]

Q. After the contract was made on July 12, 1909, did you conduct a preliminary experiment prior to changing the apparatus provided for in the contract?

A. I did.

Mr. CHAPMAN.—I believe the witness desires to make a correction. Do you remember what page it is on?

A. I do not. I remember the correction. In my statement yesterday in reference to gases contained in the oil and water-gas, and their action, either through a misunderstanding on the part of the reporter or error, in some way, I stated that monoxide and methane were both close burning gases, whereas the facts are that monoxide is a close burning gas and

(Testimony of B. S. Pederson.)

methane is a free burning gas.

Q. You mean with a long flame?

A. Yes, sir.

Q. How about the luminosity?

A. Methane has very little luminosity, as can be seen in natural gas which is practically all methane. There is hardly any luminosity. Possibly two or three candle-power. Monoxide has no luminosity, but can be enriched. It is a very close burning flame. At the same time, methane burns with a long flame and very little luminosity.

Q. (By Mr. CHAPMAN.) From your knowledge of the operation and results obtained from gas-making machines generally, and from what you know of the dimensions of this set, and the results that were obtained in the course of your experiments with it, will you state what in your opinion that apparatus is capable of producing per day, both as to quantity of gas produced and the fuel consumption?

May I add for the benefit of the witness,—I am referring to the operation under ordinary practical conditions, with fuel made in an ordinary practical manner, and conditions normal in other regards.

[445]

A. Under those conditions, the generator as built there having a grate area that it has, can easily make from three to three and a half million feet a day, or up to the capacity of the superheater and carbureter, which has a rated capacity of about 3,400,-000. So there could be no question in my mind that under normal conditions the apparatus would easily

(Testimony of B. S. Pederson.)

produce over 3,000,000 feet a day.

Q. (By Mr. CHAPMAN.) Have you answered the question with respect to the use of lamp-black fuel properly made?

A. Properly made lamp-black fuel would have the same capacity as coal or coke, as I said before, and has been demonstrated in other machines.

Q. What do you say about the carbureter and superheater?

A. The carbureter and superheater in this machine at the present time had a normal capacity, 3,400,000 cubic feet, figuring on area of the surface in the machine and in accordance with standard practice.

Q. In the manufacture of what kind of gas?

A. Water-gas.

Q. Water-gas of what character?

A. I mean as to marketable or commercial water-gas, from 20 to 24 candle-power, or 18 candle-power if it is desired—any marketable water-gas.

Q. What about its permanency?

A. It would be an absolutely fixed gas. I would not consider an apparatus having capacity unless it could make a fixed gas. It would not do to give that capacity and afterwards the gas go over in a vapor.

Q. What is it in the carbureter that determines this capacity? A. The checker-brick.

Q. The surface? [446]

A. The surface and volume of checker-brick.

(Testimony of B. S. Pederson.)

Cross-examination.

(By Mr. GOUDGE.)

Q. The first interview, I understand, that you had with Mr. Luckenbach with reference to the gas company's contemplated purchase of a water-gas set was in 1906?

A. I said I thought it was in December, but I was not positive. It may have been in January, 1907, or somewhere around that time.

Q. And at that time Mr. Luckenbach told you that they wanted a water-gas set which would use lamp-black fuel, did he? A. Yes.

Q. At that time did you know what he meant by lamp-black? A. Yes.

Q. What was it?

A. Lamp-black fuel, as explained here, which is a by-product from the manufacture of oil gas.

Q. Had you at that time any practical experience with the construction or operation of water-gas sets making water-gas from that by-product? [447]

A. No, sir.

Q. Now, Mr. Luckenbach went on further and told you something of the manner in which the gas company at that time handled their lamp-black, didn't he? A. At that time?

Q. Yes. A. Yes, I think he did.

Q. At that interview, or about the time of those conversations with him—that was in the early days before the contract was made—did you see the briquets that the gas company made from this lamp-black?

(Testimony of B. S. Pederson.)

A. I have seen briquets, but as to identifying whether they were made by this gas company or not, I am not able to say. I have seen them around town, and after that conversation saw them down at the works, and they were identified to me as briquets made by the gas company.

Q. State to the Court, if you please, how the briquets that you saw at that time they were manufactured by the gas company from this lamp-black, differed from the bricks that you have been shown here in the courtroom?

A. I would say that they differed in this way: The briquets that were shown to me down there were compact and solid, and showed no fissures, and would not disintegrate, nor could you break them by rolling them around or throwing them on the floor or knocking them together like that. They showed a tensile strength or crushing strength far superior to anything they ever had afterwards.

Q. How do they differ from these bricks in size and shape?

A. The briquets were smaller. They are probably two and a half inches in diameter and about two inches thick. They are not egg-shaped, but a sort of an oval shape.

Q. The briquets are short cylinders about two inches in diameter and perhaps a little longer. [448]

A. They were not cylinders to my recollection.

Q. Let me finish my description—short cylinders about two or two and a half inches in diameter, with hemispherical ends? A. Yes, sir.

(Testimony of B. S. Pederson.)

Q. And the diameter across the cylinder is about how much?

A. About two and a half or three inches.

Q. And the length of the cylinders?

A. About two inches.

Q. So that at a distance they would perhaps look almost globular or like a globe slightly elongated?

A. A globe slightly compressed.

Q. Well, that would be compressed in one direction or elongated in the other. The diameter of the two axes—

A. They also made some cylindrical bricks. Straight cylinders with flat ends.

Q. And maybe two or two and a half inches in diameter, and about the same length or perhaps a little longer?

A. A little longer, I should judge.

Q. Mr. Luckenbach didn't tell you they were going to furnish these briquets? A. No, sir.

Q. But that they contemplated bricking the lamp-black? A. Bricking it, yes, sir.

Q. At that time they had no bricks on hand?

A. I think not.

Q. At that time you understood they didn't even have a bricking machine?

A. That was my understanding.

Q. At that time had you ever seen any bricks—by bricks as distinguished from briquets, I mean bricks of the [449] size and shape of a common building brick, such as these that are produced—had you ever seen bricks made out of lamp-black?

(Testimony of B. S. Pederson.)

A. No, sir, not that size.

Q. What plant did you know of at that time, if any, that used lamp-black for water-gas making?

A. The San Francisco Gas and Electric Company, and the local plant here.

Q. The Los Angeles Gas and Electric Company?

A. Yes, sir.

Q. Do you know in what form the Los Angeles Gas and Electric Company was using this lamp-black in its water-gas set at that time? We have learned that it didn't have any brick. In what shape did they feed their lamp-black.

A. You didn't learn that they didn't have any brick only as far as I know. They may have had bricks there, but not to my knowledge.

Q. Didn't Mr. Luckenbach tell you that they contemplated getting a bricking machine?

A. For the purpose of making bricks for us. If they had any other brick machine there, they may have had some that they used before.

Q. But if they had, you didn't see any brick or brick machine? A. No, sir.

Q. What do you know about the form in which they used lamp-black at that time in their water-gas set?

A. They used it in lumps, carted from the piles in the yard, without any preparation, as far as I know.

Q. Do you know what size these lumps were?

A. They varied in size.

Q. Do you know what form the San Francisco Gas and Electric [450] Company used this lamp-black?

(Testimony of B. S. Pederson.)

A. Both in briquets and in the raw material. Their process was a little different from what it is down here in handling lamp-black.

Q. When you say raw material—

A. I mean without bricking.

Q. In these lumps?

A. It was not in lumps, but it came more in a mass.

Q. Those are the only two plants that you know of at that time that were making water-gas from lamp-black? A. Yes, sir.

Q. You believe this carbon or lamp-black being compressed into this solid form held its shape by reason of the binder in it. Have you made any physical examination or determination to enable you to testify what it is that binds the carbon particles together when this lamp-black is compressed?

A. Physical examination?

Q. Yes, any scientific physical examination?

A. Yes.

Q. State what that is.

A. It is a tarry and oily substance.

Q. I mean how did you arrive at the opinion that you express that it was a tar that binds the carbon together?

A. Well, I arrived at that personally by trying to press out a brick that had been dried out so that there was no moisture whatever in it, and also driving out a large percentage of the hydrocarbons, whereas a brick that is dried to five per cent will make a good brick. Another determination would be looking at them, and you can see the tarry and oily color of the brick itself.

(Testimony of B. S. Pederson.)

Q. When you say "dried out to five per cent it makes a good brick," are you referring to the raw material dried to [451] five per cent and then bricked? A. Yes, sir.

Q. When you say that makes a good brick, are you basing that on your experience with a hand press?

A. Yes, sir.

Q. Did you also make an experiment with carbon or lamp-black that had been dried to a larger percentage of moisture say ten or fifteen or twenty-five per cent, and compare the kind of bricks that made under similar circumstances? A. Yes, sir.

Q. What makes the brick of greater tensile strength?

A. The one dried to four per cent made a much better brick than any compressed with a higher amount of moisture.

Q. Now, you speak of this hand-press with which you made an experiment. What kind of a machine is it?

A. It is one of these little brick presses that they have in brickyards. I presume to test clays with, or make forms.

Q. How large a brick does it make?

A. It makes a brick about the size of one of those bricks, but in lamp-black, being more compressible than clay, it only makes thin bricks—about two inches in thickness.

Q. What length and breadth?

A. The same length and breadth, but it drives it down tighter.

(Testimony of B. S. Pederson.)

Q. In your experiment you made a brick of the length and breadth of a common building brick or about the length and breadth of these bricks here, but only— A. About half the thickness.

Q. I show you a slab of what appears to be carbon (this slab handed Mr. Goudge by defendant's counsel) and ask you if that is one of the bricks made in the hand-press? [452]

A. That is one of the bricks.

Q. Did you make that? A. Yes, sir.

Q. Is that made with lamp-black?

A. Yes, sir, containing four and one-tenth per cent water.

Q. That is, the lamp-black did before being made into the brick? A. Yes, sir.

Q. What determination and in what manner was the determination of moisture content of this lamp-black made?

A. We took a sample and weighed it with the moisture in, and baked it about five hours at 195 to 200 degrees temperature, and then weighed it back—let it cook and weighed it back.

Q. Who did that? A. I did it.

Q. Where did you get the lamp-black from which this brick was made?

A. I made that brick in San Jose.

Q. And the lamp-black came from what?

A. An oil-machine operated at that point.

Q. The San Jose Gas Works? A. Yes, sir.

Q. When you got the crude lamp-black was it in powder form or brick form or lump form or what shape?

(Testimony of B. S. Pederson.)

A. The crude lamp-black. We took it—probably containing 60 per cent moisture, and we put it on a pan and spread it out on a connection between the generator and carbureter to dry, and let it dry five or six hours, and took it off and tested it for moisture, and we took it right out to the press and poured it into the press.

Q. Did you make any tar or hydrocarbon determination of [453] this sample of lamp-black?

A. No, sir.

Q. What pressure is exerted in this press that you made the sample in? A. I can't say.

Q. Have you here with you any sample made in the same press with the same lamp-black, containing a larger percentage of moisture at the time it was compressed?

A. I don't think I have it here. I have samples, but not here.

Q. After you spread this carbon out and dried it, did you then pulverize it?

A. We stirred it up and worked it into the mould. I didn't use any mortar or anything like that to pulverize it in. I stirred it up and filled the mould and packed it in the mould with my hand.

Q. Did you make any tensile strength determination?

A. I have made no determination whatever. I took the brick just as it came out of the machine, and I wanted to determine for my own knowledge just what it would do.

Q. Have you seen any other lamp-black bricking

(Testimony of B. S. Pederson.)

machine operating except the one of the Los Angeles Gas and Electric Company's works? A. Yes, sir.

Q. Where? A. In San Francisco.

Q. Did you ever see a commercial brick machine?

A. Yes, sir.

Q. Is it a brick machine or a briquet machine?

A. It is a combination of both. It makes a briquet probably four inches in diameter, and it is a continuous process something like a sausage machine. [454]

Q. Does it make brick also? A. No, sir.

Q. Then, the Los Angeles press is the only brick-making machine that you have ever seen in operation? A. It is.

Q. It is not true in the San Francisco machine nor the Los Angeles machine that the moulds are packed in by hand? A. Not to my knowledge.

Q. Now, speaking of the changes that were made in this water-gas set, substantially the change that was made in the generator was a making over of the generator? That is, it was equivalent to a substitution of twin generators or two generators for the one previously in use? A. Yes, sir.

Q. And this dividing wall did not exist formerly?

A. It did not.

Q. In the previous experiments that you made in the machine, before this twin generator was substituted, you were using these carbon bricks as fuel, were you not? A. Yes.

Q. Did you find at that time in those previous experiments that a great deal of the fine carbon went over into the carbureter?

(Testimony of B. S. Pederson.)

A. I found considerable went over, yes.

Q. And that was the reason why this supplemental contract in the changes contemplated to be made before a final test should be made of the machine, it was provided that among the changes to be made should be a provision of ample means for the collection and easy removal of dust and fine carbon carried from the generator to the carbureter, was it not?

A. I think so.

Q. That is, your experience with the apparatus showed you that it was necessary to make some other and further provision [455] for the removal of this dust and fine carbon that being carried over into the carbureter?

A. It was necessary to make some provision for that purpose. That was the intention of that contract, I should imagine.

Q. Didn't you have any provision at all before that for the arrest of the carbon and dust carried over into the carbureter? A. Yes.

Q. But it turned out not to be adequate in practice?

A. It was not satisfactory exactly, as it was.

Q. In the old experiment and with the former machine, did the carbureter collect dust, and was it obstructed?

A. Not to any such extent as during the last test.

Q. But still sufficiently so that the means that you then had provided for the removal of the fine carbon, was not satisfactory?

A. We thought that the provisions made would be satisfactory, and in complaining about the fine stuff,

(Testimony of B. S. Pederson.)

I presumed that we should take care of it as far as we could. If we have, for example, a fuel that was in accordance with the contract, we should be able to take care of the fuel. But it don't mean that we should be able to take care of it under abnormal conditions.

Q. But it did mean that you should provide means for the easy removal of fine dust and carbon at that time and in the old machine they were not ample or satisfactory? A. Yes.

Q. When this supplemental contract was drawn and entered into, the provisions of it were discussed and considered by you as agent of The Western Gas Construction Company, were they not? [456]

A. These contracts were largely carried on by correspondence. I was not here all the time. I think the contract was submitted to Fort Wayne—some of them—and backwards and forwards. And at that time I was not all the time here, although I was a part of the time.

Q. Isn't it true that this supplemental contract of the 12th of July, 1909, was drafted here in Los Angeles in your office or in Mr. Trippet's office when you were present?

A. I don't know where it was drafted. I am under the impression it was drafted in the gas company's office, but I am not certain.

Q. Well, you have described what changes you made in the generator, thus converting the generator into a twin generator, and spending more work and labor, as you said, than in the original work of con-

(Testimony of B. S. Pederson.)

structing it. What changes were made in the carbureter?

A. The connection between the carbureter and the generator we made a change in.

Q. What kind of a change?

A. We put in that valve there called a hot valve, and that connection from the pipe leading down into the carbureter again. There is a pipe leading into the generator—

Q. You said carbureter.

A. I should say generator. Which in itself is an additional receptacle for dust and lamp-black blown over.

Q. This was a change in the design to take care of the dust and fine carbon blown over?

A. It would do that, but it was not ordinarily designed for it.

Q. What is it for?

A. It is a run-down connection.

Q. When the gas generated in the generator passes through this connection and by this hot valve on its way to the carbureter, [457] is there any valve on this? A. No, that is open.

Q. What passes down this connection when the machine is being operated and this valve is open?

A. Only a certain amount of carbon would naturally precipitate there and fall into that pipe.

Q. And then where would that lead?

A. Into the generator below the grate-bars.

Q. Into what would be the ash pit? A. Yes, sir.

Q. What other change was made in the carbureter?

(Testimony of B. S. Pederson.)

A. I don't remember whether the oil-injectors were changed at that time or not, but I think they were, and I believe we re-bricked the carbureter.

Q. (The COURT.) Is that where the oil goes into the apparatus?

A. Yes, sir.

Q. That is, sprayed in there? A. Yes, sir.

Q. (By Mr. GOUDGE.) Sprayed in up here?

A. Yes, sir.

Q. And there are several of these nozzles?

A. Yes, sir, eight of them at different points, the idea being to spray toward the center and meeting there.

Q. This place in the carbureter here is also designed for catching the fine carbon carried over from the generator?

A. It is not designed for that. It is designed to catch ashes from any generator fuel. Here the ashes were carbon.

Q. What besides this down-draft pipe—what other means did you provide in the new set for the collection and easy removal of dust and fine carbon carried from the generator [458] to the carbureter that had not been provided in the old set?

A. None. The only thing we did in that respect was providing for the removal of the dust, whereas before it went into the generator—

Q. But I am calling your attention, Mr. Pederson, to a provision of means, if any were provided, for the collection and removal of dust and fine carbon which was carried from the generator to the car-

(Testimony of B. S. Pederson.)

bureter. We have learned that in the operation of the old set in practice it developed that dust and fine carbon was carried from the generator to the carbureter, and among the changes that you desired to make and were provided to be made in your supplemental contract before the new test or final test, was a change which would provide for the easy removal of fine carbon which was carried over. Now, you said this down-draft pipe would in a measure have the effect of catching some of this fine carbon. Was there any change made in the carbureter?

A. No, sir.

Q. Now, this down-draft pipe, the primary purpose of that was not to collect the fine dust and carbon? A. No, sir.

Q. Was there any down-draft pipe in the first set?

A. Not in a location so as to act that way. There was a down-draft pipe that came down on the side of the apparatus.

Q. If this pipe, which we call the down-draft pipe, were to accumulate carbon so as to fill with carbon down at the end, it could no longer act as a down-draft pipe, could it?

A. Why not? Do you ask the question, or do you make the statement?

Q. No, I said, "Could it"?

A. It could, certainly.

Q. Do you mean that it could while it was filled with carbon? [459]

A. It could. But when it was used as a down-run pipe, the valve is open down below, and up above the

(Testimony of B. S. Pederson.)

valve is closed, leaving the opening clear.

Q. I am assuming when the generators are in operation and this valve is open, the gas which passes from the connection toward the carbureter into the carbureter, at that time fine carbon would fall down in this pipe? A. Yes, sir.

Q. And it would go on until the pipe was full in the bottom part with fine carbon? A. Yes, sir.

Q. Now, then, shut down your valve here, and open your valve here, would there be any draft through the pipe?

A. The carbon itself would naturally fall into the generator, and the valve being open, the gas would go the other way.

Q. So this would be automatically a self-cleaning pipe?

A. Yes, sir. Every time the valve is opened the carbon would fall down. That carbon had a consistency of almost quicksand. If we opened that door in the lower part of the chamber, the entire mass would run out like sand, and out of a pipe like that it would have a similar action into the bottom of the generator. [460]

Q. The supplemental contract provided, as we developed yesterday, among the changes that were desired to be made in the apparatus in order that it might be submitted to the new test, a provision for the installation of a new generator or generators, the provision of ample means for the collection and easy removal of dust and fine carbon carried from the generator to the carbureter; and, third, the provisions

(Testimony of B. S. Pederson.)

for ample and satisfactory means for scrubbing and condensing of gas made. What alterations were actually made in the set to answer that call and provide ample and satisfactory means for scrubbing and condensing gas made?

A. The changes made in the scrubber consisted in putting in larger water-sprays in the top.

Q. Anything else in the scrubber?

A. I am not certain. Mr. White, I think, changed the blocks. He put in some wooden blocks. I am not positive. Mr. White can testify to that. In the condenser the only change made was made by the gas company. It was found that the water that they supplied us then was not sufficient to properly condense the gas and bring it to the temperature required. And they placed a larger water outlet pipe and also an inlet pipe. I am not sure about the inlet pipe, but they provided a larger outlet pipe to carry away the water.

Q. Was that done at your request or suggestion?

A. Yes, sir; it was part of their work, but it brought about the condition that we desired.

Q. That is, it was to be done by them if you requested it? A. Yes, sir.

Q. And the changes were made at your instance and request? A. Yes, sir.

Q. Mr. Pederson, you have stated that the plants with [461] which you had some acquaintance—the only plants with which you had any acquaintance—which used carbon or lamp-black for the production of water-gas, were in San Francisco and Los

(Testimony of B. S. Pederson.)

Angeles, and you described the manner that you were informed and advised in which this lamp-black was used in those two plants, namely, that it was fed into the generators in lumps—rough lumps—derived from the mass of lamp-black which had been sun-dried or air-dried. Is that right?

A. Partly. I also said that they mixed briquets with these lumps in San Francisco.

Q. Did you ever see the work of supplying the lamp-black in the generators in San Francisco being carried on, at the time or prior to the making of the first contract with the Los Angeles Gas and Electric Company?

A. Yes, I would say I had. I was around the works there.

Q. Had you seen the operation of feeding lamp-black into the water-gas set of the Los Angeles Gas and Electric Corporation plant at that time? That is, at the time of the execution of the first contract?

A. Yes, sir.

Q. So that you knew in what manner the carbon was handled not only the shape but the manner in which it was fed into the generators?

A. Yes, sir.

Q. How was that done in San Francisco?

A. In San Francisco it was taken from the press and piled up—the bricks and mass together—and then taken from this pile and fed into the generator, by wheeling it in wagons to the operating room and there elevating it on an elevator, and wheeled over to the machine dumped through the bottom door in the

(Testimony of B. S. Pederson.)

wagon that they hauled it in. [462]

Q. Just tipped or dumped?

A. No, just a lid dropped and it would fall down. The material would slide into the generator from this cone-shaped barrel. They also had barrels that worked with a tipping arrangement, something in the shape of a teakettle with a large spout, which swung on the wheels so that it would readily tip, and they tipped that over and the material would go into the generator.

Q. This was in San Francisco? A. Yes, sir.

Q. And at or about the time of the execution of this first contract? A. Yes, sir.

Q. You spoke just now of their handling the bricks in that manner, but you stated a while ago that they did not have bricks, but had briquets.

A. Briquets. I am mixing those terms. They had briquets about four inches in diameter.

Q. And they also had rough lumps?

A. Yes, sir; lumps. But not so large as to prevent their going down through the chute.

Q. How large was the aperture of the chute?

A. About 18 inches in diameter.

Q. Of course, if they went down through the chute, they had to be small enough to go into it?

A. Yes.

Q. Were these lumps handled in the same way in these barrels or kettle arrangement that you have described? A. Yes, sir.

Q. Was anything done to reduce those lumps to a uniform size, so that they were all within an inch

(Testimony of B. S. Pederson.)

or two of one another? A. Not that I know of.
[463]

Q. You do know, if you saw it?

A. I did not see them reduce them or break them up to get them to that size.

Q. Did you know they were not of a uniform size?

A. They were not of a uniform size.

Q. How was it at the Los Angeles Gas and Electric Company plant? What shape was the carbon brought to the generators in that was put in the generator?

A. Brought in the wheelbarrows or wagons, and wheeled up to the floor and shoveled in.

Q. Was it shoveled or forked?

A. That I would not state positively. I don't recollect. It may have been forked or it may have been shoveled.

Q. And this carbon, referring to the Los Angeles Gas and Electric Company's plant, at the time of the execution of this contract or prior thereto, that was in lumps? A. Yes, sir.

Q. How about those lumps? Were they irregular in size? A. No.

Q. Was there anything to grade them or bring them to uniform size? A. I think not.

Q. I asked you a question just now, and I think you misunderstood me. Were they irregular in size?

A. They were.

Q. Have you ever seen anthracite coal fed into gas generators? A. I have.

Q. In the practice of gas manufacturing from an-

(Testimony of B. S. Pederson.)

thracite coal, is it usual and customary within your experience and observation to grade the coal and reduce the lumps to a uniform size before putting them in the generator?

A. If you mean by uniform size that each lump is exactly [464] the size and shape of the other, I would say no. But they do grade the coal. Anthracite is graded in probably four or five grades, peacoal, nutcoal and eggcoal, and I don't remember what the next size is, but they have terms to designate each general size. These lumps may vary from two inches to three or four inches in diameter, but they are a grade of coal—I think they are screened at the mine, and each size goes through a certain mesh and designated by that term.

Q. But no grading is done at the gas-works?

A. No. In the matter of coke, however, there is quite frequently grading done. Coke comes in different sizes, and they screen the coke to get out what they call the breeze, in that way they reduce the coke to uniform lumps, within a reasonable limit.

Q. So that according to your observation and experience in the case of coal and coke, the material is usually obtained and delivered into the generators of a tolerably uniform size, but in the case of rough carbon there is not any grading of the lumps, and they are delivered as they come?

A. That has been the custom.

Q. Now, Mr. Pederson, you speak of the necessity or the practice of closing down water-gas generators at certain periods. Do you know how often the

(Testimony of B. S. Pederson.)

water-gas sets in use at San Francisco at the time of the execution either of the first contract with the Los Angeles Gas and Electric Company or at the time of the execution of the supplemental contract with the Los Angeles Gas and Electric Corporation, was?

A. I don't know positively. No. In fact, I cannot say that I know at all.

Q. Isn't it true, Mr. Pederson, that the only knowledge you have of any practice existing anywhere of any closing down of water-gas sets every seven days, is your knowledge of [465] the fact that the Los Angeles Gas and Electric Company made a practice of closing its set down once in seven days?

A. This is the only plant where water-gas was made under those conditions, except the San Francisco plant.

Q. What do you mean by "those conditions"?

A. With lamp-black conditions. And consequently this was the only plant that I could refer to especially.

Q. As to the San Francisco plant?

A. I do know this: In San Francisco they are not running continuously. They have from two to four generators going there, and they are not running continuously. Usually one is shut down and then the other. I do not know how often they shut down or what their exact periods are.

Q. Whether it is once in four days or once a week or ten days—

A. I would not be able to say that.

(Testimony of B. S. Pederson.)

Q. Now, you explained the reason for the necessity for shutting down such a set as this, and, as I understood your testimony, the principal reason was the condition that the carbureter would get into; that, for example, when the checker-brick in the carbureter became coated with unconsumed carbon or with the residuum of asphaltum, or coated so as to become unclean anyway, reducing the surface of the brick work, that would depreciate the efficiency of the machine; and in the end, if that condition continued progressively, it would choke the carbureter so as to render it necessary to stop and clean the carbureter. Is that correct in a rough general way?

A. Yes, sir.

Q. Now, then, the need of closing down the machine in order to burn it out or clean it at any particular interval of time, varies with or relates to the condition of the carbureter [466] from time to time? For instance if the carbureter remained clean, it would not be necessary to close the machine down?

A. That might be good. Depending also on the condition of the fuel. If your fuel becomes so absolutely impenetrable that you cannot get the necessary combustion, you might have to close down to build up a new fire in the generator.

Q. But this need or requirement or expediency of closing down one day in seven, that you refer to, is so that the carbureter may be cleaned and restored to an efficient condition?

A. Yes, sir; that is the object of closing down the

(Testimony of B. S. Pederson.)

carbureter or machine under those conditions.

Q. Now, you spoke of spraying, or explained a part of the system of manufacturing water-gas in such set as this—that it involved the spraying of oil into the carbureter, and that that is where the enrichment takes place, and you stated in part of your testimony that if too much oil was sprayed in the temperature of the carbureter would be lower, and there would be a probability of the oil being deposited on the checker-brick, or if the temperature was not high enough it might be deposited on the brick, and it would become foul and possibly choked.

A. Yes; there is a possibility of that.

Q. So that with the ideal condition to bring the machine to its best condition, the object you have is to get just enough oil in the carbureter, having in mind the character and quantity of the oil as well as the temperature of the carbureter—just enough so that it would go on operating without fouling?

A. That would be the ideal condition.

Q. And the length of time that the carbureter would run [467] without requiring to be cleaned would depend upon how closely one could approach that ideal condition? A. Exactly.

Q. And, as you have testified, it is not only theoretically possible, but actually practicable and observed in experience that a set would run for three or four weeks or could run for three or four weeks in actual practice without need of closing it down?

A. It could, if conditions were normal.

Q. Another factor enters into the case, does it not,

(Testimony of B. S. Pederson.)

that the larger your carbureter, and the margin between the carbureter's final efficiency, and the work it is called upon to do, the longer it will stay in efficient operation? That is, if the machine is worked below its maximum capacity, the carbureter would stay in condition longer than if it was forced to its absolute maximum capacity? A. Yes, sir.

Q. In speaking of balancing the set or any set, using the expression you have frequently used, one of the meanings of the word "balancing" is bringing the set into such operation that everything may go smoothly and then fouling may be avoided as near as possible and, if possible, avoided entirely?

A. That is the idea of balancing the machine; getting the proper efficiency out of it.

Q. And one of the factors of efficiency, as shown by the machine, would be its continued operation without fouling? A. It would.

Q. As you have used it in your direct testimony, the word "efficiency" means quantity of product of a desired quality, usually, does it not? That is, you measure the efficiency by the quantity of the required gas produced?

A. Quantity, yes, with economical results desired. I [468] would not call a machine efficient if it produced the quantity and did not do it with material required to economically produce that quantity.

Q. So that the efficiency is made up of the quantity of the product of the desired quality, within the limits of economy prescribed? A. Yes.

Q. Now, you said that with this set, at least I un-

(Testimony of B. S. Pederson.)

derstood you to say, if it had not been for the carrying over of the fine carbon and dust and the resulting difficulties from that that you could have operated the set continuously without shutting it down, though you doubted under that continuous operation, whether you have gotten efficiency. You said something like that.

A. For a term we would naturally get efficiency.

Q. I don't mean operating continuously without limit.

A. When you say "continuously" you may mean nine months or a year. But operating continuously for a month we would have efficiency. But I do not want to be understood that it would be continuous.

Q. I was going to invite you to say what you meant by "continuously."

A. I mean within a reasonable limit of time.

Q. You would say, perhaps, a month continuously, or thirty consecutive days? A. Yes, sir.

Q. Very well. But you said though that might have been done, you hardly thought, or you doubted whether you would have gotten efficiency. What did you mean by that?

A. That towards the latter end of the run it would naturally—the brick would become glazed. The action of the heat on the brick would make them less porous and not so refractory [469] to heat, and consequently you would not have the full efficiency of your machine. While a brick is clean and porous, it naturally has more refractory powers and can be used longer.

(Testimony of B. S. Pederson.)

Q. Now, using the word in the sense that you use it, do you mean that towards the end of the thirty days you would expect the machine to show a falling off in the amount of gas produced per thousand pounds of carbon?

A. No, the generator would have nothing to do with it. If the fuel was ideal, there would be no change and the generator could run for a year. That is, if the clinkers do not accumulate.

Q. Where would the falling off of the efficiency in the thirty days occur?

A. It would be an oil efficiency.

Q. You would be using more oil?

A. More oil for a certain candle-gas.

Q. But you think there would have been no change in the economy of fuel?

A. No, I think that would remain substantially the same.

Q. You came down here after the commencement of this final test, about the 14th—

The COURT.—The 12th he got here.

A. The 12th.

Q. (By Mr. GOUDGE.) I beg your pardon. That was the same error I made yesterday. What time of the day was it when you first saw the set in operation on the 12th.

A. I cannot exactly say. Some time before noon. I do not remember whether the train was exactly on time. I came down on the Owl, and it may have been an hour or two late. I don't remember. But I came down to the works just as soon as I located myself at the hotel. [470]

(Testimony of B. S. Pederson.)

Q. It was somewhere near mid-day?

A. I think so.

Q. Now, then, you said that when you saw the machine, or when you first got here, or very soon thereafter, the machine in its operation to you did not seem to be properly balanced. When did that appearance present itself to you? When did you arrive at that conclusion or opinion?

A. Shortly after I arrived at the works. I looked over the report of the preceding day or two days and saw the action of the machine. It is difficult to describe exactly how you could tell those things on a machine. It may have been in the manner in which the blast was going through the machine and in the general operation of it; dust accumulating there; the looks of the fire. But it was apparent to me that the machine was not doing itself justice at the time.

Q. And when you say "at the time" you refer to the afternoon of the 12th? A. Yes, sir.

Q. Before arriving at that opinion, you looked at the record of the make of the machine during the previous two days? A. Yes, sir.

Q. Do you remember what that make was?

A. I think it was somewhere in the neighborhood of 2,700,000 on the first day, and 2,500,000 on the second day. I do not remember the exact figures.

Q. Let me suggest the quantities to you—you have a memorandum of it?

A. I think I have a memorandum of it. 2,422,000 is my memorandum.

Q. That is the second day. And on the 12th?

(Testimony of B. S. Pederson.)

A. On the 12th, I didn't have that. We wouldn't get [471] that till next morning.

Q. But you did have a record every hour of the make, didn't you?

A. After arriving there?

Q. No. There were meter readings taken hourly, and you could ascertain?

A. I think not, I wasn't there. Mr. White was only on during the day, and if I remember correctly the gas company only took two readings, one at 6 o'clock in the evening and one at 6 o'clock in the morning. It was after I arrived that I took hourly readings.

Q. I ask you that to ascertain whether or not on the 12th in the afternoon, when you formed this opinion about the want of balance of the machine, you ascertained how the machine was running right then, or during that forenoon?

A. No, there wouldn't be any opportunity of doing that. It would be merely a guess. At any rate you wouldn't want to change conditions each hour. You would have to run an hour or two or three hours to see whether it was just a temporary trouble that might work itself off. It is a pretty large machine. And if we were to switch around every hour because we happened to make a little more or a little less gas, we would do nothing else but switching operations.

Q. I was not suggesting that. But I want to know whether the falling off in the amount of gas produced by the machine on the second day of its

(Testimony of B. S. Pederson.)

operation was not one of the things that impressed you with the opinion that the apparatus was not properly balanced?

A. Oh, yes. That impressed me very much, because in ordinary operation it should increase. That is, with coal or coke.

Q. And, of course, from what you said, you have not the [472] previous experience to know whether with lamp-black there should be such a difference as this and there should be a falling off instead of an increase.

A. I figured that with lamp-black or proper fuel we should have an increase in this machine, the same as in the other. There is no logical reason why we should not, outside of the fact that the machine was not in proper condition and was not properly balanced.

Q. Did you make any changes in the operation of the machine during that day—the 12th—or order any to be made?

A. I did not according to my recollection.

Q. What was the make of the machine for that day, ending at 6 o'clock in the morning of the 13th?

A. My memorandum says 2,247,000.

Q. And on the next day did you make any change in the operation of the machine?

A. I do not remember exactly. I would have to look that up on the operating report.

Q. Even if you made any changes, they would be just in the matter of furnishing fuel or oil or steam or blast?

(Testimony of B. S. Pederson.)

A. It would be somewhere in the handling of the apparatus. That is the only condition that we could control at that time.

Q. It was no structural change in the apparatus?

A. No, sir.

Q. What was the make with the machine on that day—on the 13th? A. 1,935,000.

Q. And on the next morning the 14th, you closed down? A. Yes, sir.

Q. Can you give the reason why a machine for the making of gas should produce more gas on the second day than the first day of its operation?

A. The reason for that is that on the first day we usually [473] feel our way. We do not know, unless by some accident you guess at the conditions, you would not know the exact quantity of steam to put in the generator, or of air, or the exact quantity of oil to take care of that. Knowing the first day what you have done, and seeing the machine in good condition, you increase it up to the point where you feel that you can take it the next day. For example, putting in a certain amount of steam you see it is making a certain amount of gas per hour or per run, which we could ascertain, and finding that the carbureter takes proper care of this gas and knowing at the same time that you are not up to the rated capacity of the machine, you increase the steam probably a small quantity the next day, or you may run along the same way for another day to see if this condition is true before making changes, and then you increase the steam and generate more gas

(Testimony of B. S. Pederson.)

and put in more oil to take care of this gas.

Q. Now, then, the reason why you expect a machine to produce more the second day than the first is that you have to go through these balancing operations and get the machine just so? A. Exactly.

Q. And after reaching that point where you get near the rated capacity of the machine, from that time on the production should be approximately constant? A. Yes, sir.

Q. Very well. Do you know when this machine was started up prior to the 10th of March, 1910, and for how long it had been continuously run up to the 10th of March, when the test began?

A. I wouldn't be able to testify to that. I wasn't here at the last time it was operated, if my recollection serves me. We started up some time in January and ran two or three days. [474]

Q. I mean continuous run prior to March 10th?

A. I don't remember whether we had any. In fact, I was not here at that time. I may want to correct that later on if I find by correspondence that I was here. But my recollection is at the present time that I was not.

Q. You got here and saw its operation during this test the first time on March 12th, and you spoke of this falling off in the production as one of the things that impressed you with the opinion that the machine was not balanced, because among other things, instead of falling off there ought to be an increase on the second day. Did you believe at that time that the 11th of March was the second day's oper-

(Testimony of B. S. Pederson.)

ation of the plant? Did you believe it had been started up on March 10th in the beginning of this continuous run?

A. That was my understanding.

Q. That it was fired up on March 10th?

A. No, no. I said it had been fired up a day or so ahead of the time.

Q. And run continuously?

A. No, I think they were just building up the fire and getting it in condition to start to run. It may have run partly on the day previous or made some runs, but I don't know just to what extent. It was a very short time, I am sure. [475]

Q. I understood you a little while ago to say that you did not have any means of knowing what the run was from hour to hour?

A. I didn't say that.

Q. In connection with your testimony as to the condition existing on the 12th.

A. I said I had no means of knowing then because the gas company read the meter twice a day, whereas later on when I was operating I took hourly readings.

Q. You had not begun that on the 12th?

A. No, sir. You were asking then with reference to what happened on the 10th and the 11th.

Q. I was inquiring as to the conditions on the 12th, and whether you knew there was a falling off, and you said the meter was only read twice a day, and you wouldn't know till next day?

A. That is true.

(Testimony of B. S. Pederson.)

Q. Then you did not read the meter every hour on the 12th? A. My reports show—

Q. Will you produce the reports?

A. I am not positive about the 12th, but I may have started in at 6 o'clock in the evening and read the meter from that time till next morning. But at the time I was there on the 12th, we had not done it.

Q. Please produce your report for that evening that you referred to. A. The operating report?

Q. Yes, sir. State what this is.

A. It is the night operating sheet used in connection with the water-gas set.

Q. This gas-set? And the night of what day?

[476] A. Of the 12th.

Q. That is the day you got here? A. Yes, sir.

Q. And by night you meant 6 o'clock in the evening till 6 in the morning?

A. To 6 A. M. on the 13th.

Q. And you made such a report for each night of the test? A. Yes, sir.

Q. Would that show what the meter read and what the production of gas was? A. No, sir.

Q. For no period of time? A. No, sir.

Q. It does not show the amount of gas made?

A. No.

Q. Is there an omission from this report or what?

A. The operating report makes a record here of each run, the amount of gas. In some gas works the holder is so arranged that it has a pulley into the operating room which would show each run—a pulley with an index—showing each run of the machine

(Testimony of B. S. Pederson.)

on that index by the elevation or depression of the holder. The holder fills and goes up and it would indicate on this indicator. That is supposed to be a guide for the operator. But we did not use it there.

Q. You did not note on your report the amount of gas made? A. No, sir.

Q. Nor each day?

A. No, sir. That was personal notes that I took for my own benefit. I don't think I even—I may have told the operator that he was making so much this hour and so much that hour, but it was not for a permanent record.

Q. So that this memorandum or night report does not show [477] whether you consulted the meter or knew what the quantity made from hour to hour was or not? A. It doesn't show that.

Q. And you are not able to say whether you did or not? A. On that first day?

Q. Or that first night?

A. Yes, I am positive. But as to swearing absolutely I wouldn't care to do that. But I started in with the idea of doing that and keeping a close track and seeing how we ran each hour, and I know that I did it the other nights.

Q. On this report the candle-power is entered?

A. Yes, sir.

Q. That is the candle-power as reported by Mr. Robinson?

A. Yes, and the report is signed by the operator.

Q. Did you make any memorandum other than this report or apart from this report of the amount

(Testimony of B. S. Pederson.)
of make of gas?

A. Just a temporary memorandum, so that I would get it from hour to hour. I put it down on a slip of paper through the day, and I may have handed it over to Mr. White in the morning, but I don't remember whether I did or not.

Q. Have you those memoranda?

A. No, I have not.

Q. Was there any permanent memorandum or record made by you or under your direction of the make?

A. No, sir. I was on duty and I would give him the data and he would make up the report from his record.

Q. And this Sugg photometer was at the time of the test—it was the same machine that had been used there prior to the test?

A. Yes, I should say it was.

Q. When had you seen it before?

A. I had seen it numerous times when I was around the works. [478]

Q. It was the regular photometer installed there?

A. It was the photometer they had there. I did not go into the question of how it was arranged, naturally assuming that they would have a standard apparatus in the works.

Q. And this one that was used in the test was the same one that they had there?

A. I assumed it to be, yes. I do not believe there was any change made.

Q. I call your attention to the letter written by

(Testimony of B. S. Pederson.)

you June 16, 1908, addressed to the Los Angeles Gas and Electric Company, Exhibit "B." You wrote that letter, I believe, did you not? A. Yes.

Q. And this letter contains the statement "The photometer is accurate and correct." A. Yes, sir.

Q. You were at that time satisfied that it was correct?

A. I was satisfied from the statements made by the chemist and foreman that it was correct. [479]

Q. It is possible, is it not, to blow over more or less fine carbon by the strength of the air blast used? That is, for the purpose of illustration, if one used an extraordinarily and excessively strong air blast in the generator, one would blow over material and carbon that otherwise would not pass over?

A. Naturally. That is the only way you would get it over.

Q. And one of the balancing operations, particularly in a set designated to make gas from lamp-black, would be to get your blast strong enough to cause the air to permeate or penetrate the fuel, and yet not so strong as to blow the stuff over to the carbureter? A. Yes, sir.

Q. Now, from the fact that on the 14th of March, the carbureter was choked, you concluded that it could not have been clean when it started, didn't you? A. Yes, sir.

Q. Were you assuming when you said that, that it started on the 10th of March? A. Yes, sir.

Q. You don't know what the fact is, the fact whether it did not start many days before that?

(Testimony of B. S. Pederson.)

A. Only from the records kept by Mr. White. I think he has a record showing that he put the fire in there on the 8th or 9th. [480]

Q. That is what I wanted to get at. You were informed and you did believe that it had been actually fired and started in operation before the 10th.

A. Yes, sir.

Q. Bearing that in mind, would the condition on the 14th, if the set had actually started up several days before the test—was the condition on the 14th such that even then you believed that the carbureter was not clean when the set was started? Or do you mean simply that it was not clean on the 10th of March? A. It was not clean when it started.

Q. Even though it was started on the 7th or 8th of March? A. Two or three days before.

Q. To give a set of this kind a proper demonstration and get the proper results, it ought to be clean when it begins, ought it not? A. I think so.

Q. Speaking, now, of the fuel that was furnished, you saw the fuel, as it was being delivered? Did you see it over in the piles, the piles from which it was brought during this test?

A. Did I see it in the piles?

Q. Yes. A. I did at times.

Q. During the test? A. During the test.

Q. In the previous experiments with this set or the set that preceded it, have you seen these piles of brick? A. These same piles?

Q. Yes.

A. That I could not say, whether they were the

(Testimony of B. S. Pederson.)

same piles. I have seen or did see at different times different [481] piles of brick.

Q. In the same place?

A. No, I don't think they were in the same place. I think the piles there earlier were in another yard, but that is a matter that I cannot positively state.

Q. But were they the same kind of bricks?

A. So far as shape were concerned, do you mean?

Q. Yes. A. Yes.

Q. Have you ever seen any other bricks made of lamp-black except the bricks made by—I mean commercially made brick—bricks in large quantities, turned out by a commercial press—other than the bricks made by the Los Angeles Gas and Electric Company or the Los Angeles Gas and Electric Corporation? A. No.

Q. Do you know of any lamp-black brick making machine in actual use except the machine or machines used by the Los Angeles Gas & Electric Company or the Los Angeles Gas & Electric Corporation?

A. I cannot state as to that. I know there—you mean bricked to this particular shape?

Q. Yes, bricks as distinguished from briquets. When I say bricks I mean the bricks like these produced here, which are about in the shape of a common building brick. A. No, I don't know.

Q. At the time the company was furnishing this fuel to you during this test from March 10 to March 30, do you know whether they had any better bricks than those they furnished you—better in the sense

(Testimony of B. S. Pederson.)

of having greater tensile strength?

A. I cannot say as to that, because, as I said before, I was on at night and did not go over much and around to examine. I kept close to the operating floor and my work. [482]

Q. Do you know whether or not these bricks that were furnished you during the test had or had not been sun-dried or air-dried?

A. To my own knowledge I don't know.

Q. Do you remember seeing the piles of brick in the company's yard, such brick as has been furnished to you, and noticing that they were covered over with corrugated iron or tarpaulin or any means taken to protect them from the weather?

A. I understood they were.

Q. You were here in January of that same year?

A. A short time; yes.

Q. You understand, do you not, that the possibility of drying brick in the air to a certain degree of dryness or a certain percentage of moisture depends upon the humidity of the atmosphere, and that you cannot get the bricks in the air any drier than the air itself is?

A. Yes, I understand that.

Q. Did you ever make any objection to any officer or representative of the Los Angeles Gas and Electric Corporation to the drying of these bricks by artificial heat?

A. Not directly to the men around there. I made complaints about it, but I would not call it an official objection. Mr. White was practically in charge of

(Testimony of B. S. Pederson.)

all the negotiations carried on between the companies, and he would act on my recommendation. But he principally carried on these negotiations.

Q. You also said in conversation with Mr. Luckenbach on the subject of the company's having in contemplation the purchase and use of a Cummer dryer for drying lamp-lack. A. Yes, sir.

Q. You know now that the Cummer dryer cannot be used to dry brick? [483]

A. They did not intend it to dry brick with.

Q. Did you understand at that time that it was used for drying brick? A. No, sir.

Q. Did you have any conversation with Mr. Creighton at the gas-works with reference to the company's ability to furnish brick to be used in this generator, with respect to their being the kind of brick that you were entitled to receive?

A. At what time?

Q. When you first came, during the test?

A. No, sir.

Q. So, on the 12th you arrived. On that day did you have any conversation with Mr. Creighton about the bricks at all? A. I did not.

Q. You did not even complain of the bricks on that day? A. I did not, not to my recollection.

A. Do you remember on the day you arrived at Los Angeles, on the 12th, being over in the yard where these bricks were, and conversing with Mr. Creighton respecting them in the presence of Mr. Creighton's men who were handling the brick, and asking him what they were doing with the bricks,

(Testimony of B. S. Pederson.)

and Mr. Creighton saying something to this effect: "We are repiling them so as to dry them out. We intend to have them dry, if it takes all the money we have got"; or words to that effect? And your replying, "Well, the company is doing all it can to furnish us brick," or "the right kind of brick"?

A. I don't remember anything of the kind.

Q. You don't remember being in the yard?

A. No, sir, I do not.

Q. Do you remember seeing the men sorting or repiling the bricks on any day during the test? [484]

A. No. I may have seen them, but I didn't pay any particular attention to them, and I cannot remember distinctly that I did see them. I would not say that I did or did not.

Q. You referred in your direct testimony to a suggestion that you use bricks of a greater percentage of moisture than ten per cent. Who made that suggestion?

A. I don't know as it was particularly a suggestion, but in discussing the matter he advised the use of them inferentially.

Q. Who?

A. Millard. Most of his statements were made inferentially as man to man. He wanted to give me the benefit of his experience and advice without doing it officially.

Q. You do not understand that the gas company was wanting you or asking you to use bricks of a greater percentage—

A. That was not the idea. He was doing this as

(Testimony of B. S. Pederson.)

a personal matter and suggesting that to me.

Q. Were not those remarks made sometime between the time when Mr. White on or about December 13 asked for bricks of a greater percentage of moisture than ten per cent, and your letter of the 28th where you countermanded that and said you would take the bricks according to the contract? Was not that the period when the matter was discussed?

A. That matter was discussed at so many different periods that it might have been discussed at that time, too. But it seems to me a matter of opinion largely between Mr. Millard and myself which is the better bricks, and the discussion particularly came up the day we were testing out the machine with the preliminary test. It was then discussed and it possibly was discussed later on.

Q. At what time or times in December, if at all, did you examine the bricks that the company had on hand? [485]

A. I don't remember that I examined them at all at that time.

Q. Were you here in the month of December, 1909?

A. Yes, I was here the latter part of the month for a day or two, I think; I was passing through to somewhere else.

Q. There is in evidence a letter from you dated December 28, 1909, dated in this city and addressed to Mr. Luckenbach. Perhaps that will refresh your recollection as to whether you were or were not

(Testimony of B. S. Pederson.)

in this city on that day. A. Yes.

Q. You were in the city on December 28th, were you? A. I was.

Q. Do you remember how many days you had been here then?

A. No, I don't think so. Possibly a day or two. I was on my way to another portion of the territory.

Q. I want to read a sentence from this letter so as to refresh your recollection and ask you a question from it. It is exhibit 15. "The fuel that you have on hand at present will be satisfactory, but we feel that it must be protected from additional moisture, and would ask that you protect the fuel that you have ready for us from rain and other moisture that may be precipitated upon it." Can you now say whether you had seen the brick shortly before writing that letter, or at any time before writing that letter?

A. I should judge from that that I had seen the brick, but I do not recollect the occasion.

Q. Does that letter refresh your recollection as to the weather and the fact that you suggested that they must protect the bricks from rain? Do you recall whether it had been recently raining?

A. It must have been raining sometime previous to my being here. I don't remember whether it rained here or not. [486]

Q. Do you remember whether anything was done or being done to protect the bricks from further moisture?

A. Not during my present remembrance. I un-

(Testimony of B. S. Pederson.)

derstand that it was, but personally I didn't have any knowledge of it. I think it was in one or the other of the yards that were fenced in. I don't think I saw it. And even so, I may have glanced at it and seen it.

Q. You have observed with these lamp-black bricks as the general characteristic of all lamp-black bricks, that when they are heated or when they are hot they lose some, at least, of their cohesiveness?

A. I have seen that.

Q. Did you ever notice what happens to the brick as to the form when they strike the fuel bed in the generator? Did you ever look into the generator at that time to observe what occurred to them?

A. You mean after they were heated?

Q. Yes, sir. Did what happened there bear out your statement that when you heated the bricks they disintegrated?

A. They disintegrated. Particularly so with a high amount of moisture in them. They disintegrate to a very fine—almost entirely into powder. Whereas, the drier helped them hold their shape better.

Q. Now, this chute, through which the bricks were slid down into the generator was, I think you said, a tolerably convenient method of feeding the fuel into the generator. A. Yes, sir.

Q. You spoke of the perforations in that chute being of certain dimensions and that the perforations were separated by a strip of solid metal, so that there was a space in which the fine material could

(Testimony of B. S. Pederson.)

lodge. [487] A. Yes, sir.

Q. Isn't it true that these perforations were in series or alternated relation, so that lower down the chute the perforations would come beneath the solid part of the tier of holes above or the tier of partitions between the holes above? Do I make myself clear?

A. I understand what you mean, but I cannot recall whether that is so or not.

Q. So, if you don't recall that, you do not know that it is an actual fact that it was a long, straight natural piece of sheet iron from top to bottom, along which this could slide uninterruptedly when it got down into the generator?

A. Yes, sir. That would not have the same effect, because the lower strip would still have these—it would not be to such an extent if they had long strips going the entire length, but it would to a certain extent. A disintegration of the brick took place in the entire passage of the brick into the generator. Even after it left the strip it would disintegrate in the chute going down.

Q. You were not in any way bound to deliver the fuel into this generator by this particular method? I mean bound in the sense of being under any obligation. It rested with you to put the fuel into the generator in the manner most advantageous to yourself?

A. It rested with us to use the apparatus furnished us by the gas company to do it with. Otherwise we could not work efficiently.

(Testimony of B. S. Pederson.)

Q. And it rested with the gas company to make such modifications in the apparatus for your use at the plant as you desired to have made?

A. In that part of the plant.

Q. Did you ever ask for any different method of delivery [488] of fuel into the generator than the one furnished? A. Personally, I did not.

Q. And one of the reasons for that was that you thought it was a satisfactory method?

A. Well, it was satisfactory so far as the actual mechanical device was concerned, but I believe there was a question came up. Mr. White suggested that we throw it down on the floor and shovel it in, but that would take so much time to do that we would not get the operating time in.

Q. Who suggested that? A. Mr. White.

Q. Wasn't there one time when you got cars or carts and tried that method? A. Yes, sir.

Q. Who suggested that?

A. That was suggested during the times we were shut down.

Q. I want to get it clear that the gas company was not dictating to you in what way you should put the fuel into the generator?

A. No, we could discard their apparatus and use our own means for doing it. But they were supposed to co-operate with us.

Q. And furnish you something else, in reason, if you wanted something else?

A. Which I think they refused to do.

Q. During the operation of this set there was a

(Testimony of B. S. Pederson.)

leak from the generator—at the top of the generator—during this—March 10th to March 30th?

A. Yes, sir.

Q. Wasn't that of sufficient importance and extent that the men working there were very much inconvenienced and distressed [489] by it?

A. I explained that, I think, yesterday, by saying that that inconvenience to the men was caused particularly by the fact of this fine dust coming down on the floor and sifting through the floor plate and burning on top of the generator and creating a dense smoke, which would not occur from a plain leakage of gas.

Q. Wasn't the odor of that smoke different from the odor of the gas that leaked from the generator, so that the two could be distinguished?

A. Not when they came together as they did there. It would be difficult to distinguish those odors.

Q. Referring to the operating floor and to the fact that the plates in it were not level, and loose, it is a fact, is it not, that during the operation and the close of the operation of this test, the operating floor was in such a condition, namely, not level, and the plates loose?

A. It is a fact that all iron floors are placed loosely on the frame work built for them. They are made to fit between the spaces between the I-beams, and it is not the general practice to bolt them down or fasten them other than by their own weight. The floor was raised a little over the top of the generator, but only

(Testimony of B. S. Pederson.)

to the extent that the generator expanded from the heat there.

Q. By "raising" you mean thrown out of level?

A. Yes, sir, a little out of level. I would not say over an inch or two. But not at other parts of the floor.

Q. Otherwise, you say that floor was constructed according to good practice. A. Yes, sir.

Q. Isn't it a fact that one of the plates of that [490] fell and hurt a man and you paid damages for it?

A. That is a fact, but there was a condition entirely abnormal. A spark, supposedly from their works, came over while our plant was shut down, and caused an explosion which shook the building and threw this plate up and turned it over so that it could fall through to the lower floor. That is a condition that probably would not occur once in a million times.

Q. Referring to that small brick that you produced here yesterday, an inch or two thick, that you say you made with the hand-press, is it not true that the press that you made that in is of such a character that it twice presses the brick, once the upper plunger comes down and then by some mechanical arrangement in the press the other comes and presses the brick the second time?

A. No, sir, that is not true. It is one direct pressure when the lower plunger comes and meets a plate fastened over the top.

Q. (By Mr. EDWARDS.) You don't know what

(Testimony of B. S. Pederson.)

the pressure per square inch was or pressure on the area?

A. No, sir, I had no means to obtain that knowledge. I just used one of those little hand-presses.

Q. (By Mr. GOUDGE.) Do you know whether by the use of a brick-making machine such as are in common use for the making of lamp-black bricks, any greater pressure could be used and was used in the making of these bricks furnished you for fuel in this set?

A. I have information from the makers of these machines. But actual knowledge I have none, not being in the brick-machine business. It would be knowledge gained from the men who make them.

Q. And you say you never saw one of these machines operating [491] except this machine?

A. That is all.

Mr. GOUDGE.—That is all. It is understood that the witness will make up the data from those reports and bring them in later.

Redirect Examination.

Q. You stated in answer to Mr. Goudge's question that you had some familiarity with the use of gas-making apparatus using lamp-black in San Francisco, and this plant here in this city?

A. Yes, sir.

Q. And the fact that they use lumps instead of bricks or bricks and lumps together?

A. Yes, sir.

Q. Do you know whether those machines get efficiency from that use or not?

(Testimony of B. S. Pederson.)

A. To the extent approximately of 50 per cent of the standard machines using coal and coke.

Q. Do you know the size of these four water-gas making machines they have here?

A. I did not measure them myself, but my information is that it was two ten-foot machines and two eight-foot machines. I am ready to stand corrected on that. I think they are approximately correct.

Q. You say in using the fuel that way they get 50 per cent efficiency?

A. I don't know positively as to this plant here. That was my understanding. But as far as the San Francisco plant, I have positive information to that effect. [492]

Mr. GOUDGE.—The witness said 50 per cent efficiency of the coal machine.

A. Exactly. A machine using coal or coke. I also have positive information to the effect that using briquets that were dried properly, that they got full efficiency as compared with coal or coke. That is on record, and it is on record in our Pacific Coast Gas Association.

Q. (By Mr. CHAPMAN.) Do you know where any test was made to ascertain the relative efficiency?

A. Made in San Francisco at the Potrero Works.

Q. You asked about some conversation with Mr. Creighton at the brick works. Do you recall any conversation with Mr. Creighton about the efficiency of this plant and apparatus?

A. The only conversation I recall with him was one evening he happened to be down here and we were

(Testimony of B. S. Pederson.)

talking over the machine and the operations, and we seemed to run along nicely, and he expressed the fact that he was satisfied that we would come within our guaranty, and he further said that if they did accept the plant he would be making two and a half million feet on it inside of two months, or words to that effect. One evening we were at the works there as we walked across the street to the corner.

Q. You were asked about changes made in the scrubbing and condensing apparatus in this set. In this test or at any time after the changes were made and the apparatus ready for gas-making, did you have any trouble with the capacity of the scrubbers and condensers to handle the product?

A. The only time we had any trouble at all would be when the gas company would neglect to furnish us a full quantity of water. But this complaint they usually remedied immediately and I don't even know if it is on record. Usually when any conditions of that kind occurred, we would put it on record on [493] the report. But I did not think it was enough to warrant even making a complaint about. The condition of the superheater and condenser at that time were normal during the entire test.

Q. The scrubbing and condensing apparatus, you say, was adequate?

A. It was adequate, without any question.

Q. You were asked about regularity or uniformity of size of fuel in the water-gas apparatus using coke and anthracite coal, and you said something about breeze. What is that breeze?

(Testimony of B. S. Pederson.)

A. It is the fine particles or small particles of coke produced by the friction of one lump of coke against another.

Q. Do you know whether any means were usually taken to keep that out of the generator, or was it kept out? A. It was usually kept out.

Q. Why?

A. Because it creates a condition of filling up these smaller spaces, and a clean coke would give better results and a freer fire and better fire, and an opportunity to become incandescent throughout the entire mass. And in breeze or coke the ash is in the nature of iron and foreign matter, which forms a hard clinker, and with a great quantity of breeze it was apt to form a good, hard clinker on the grate-bars.

Q. Is the result of dust and fine stuff in the lamp-black very similar to breeze?

A. So far as the fire itself is concerned, although it does not have the same effect as far as clinkers are concerned.

Q. You were asked about the effect of putting too much oil in the carbureter, and thereby overloading it. If you put more oil in the carbureter than it was capable of taking care of, would that immediately manifest itself?

A. It would by the oil coming over into the seal. If [494] you give it more oil than the carbureter had capacity for, it would come over and show in the seal as oil running over. It would condense in the seal.

(Testimony of B. S. Pederson.)

Q. Would it invariably show in the seal and thereby indicate that you were overloading the carbureter?

A. Yes, sir.

Q. During this test did you have any indication at all that you were overloading it by the appearance of oil in the seal? A. I did not.

Q. If you were putting too little oil in the carbureter or carrying your heats too high, would that manifest itself?

A. That would be indicated in the seal by the appearance of the lamp-black in the seal.

Q. Did you have any trouble of that kind?

A. Not to my recollection.

Q. You were asked something about the effect of having an excessively strong blast in the generator as to carrying over greater quantities of pulverized matter into the carbureter through the blast. What regulates the necessity of the pressure of the blast in the generator?

A. The condition of the fuel bed.

Q. If that fuel bed had been open and loose and filled with the proper crevices by reason of having a substantial fuel there, could you materially decrease the blast pressure?

A. I should judge we could decrease that pressure to the same point, where we carry it on coal and coke, namely, 10 inches—not over 12—instead of 20 or 21.

Q. Do you know whether any change was made in the blast line immediately before this test was started, with reference to its size?

A. I do know, because an extra line was put in—

(Testimony of B. S. Pederson.)

an [495] extra blast line and a temporary valve put in till we could get one from the east.

Q. Does the pressure of the blast have anything to do with the combustion that *take* place?

A. The pressure would not; the volume would. Of course, by decreasing the size of the opening, you would have to increase the pressure in order to secure the volume. But the volume is the actuating power of combustion.

Q. You were asked whether or not the experience you had a few days after you got here indicated to you that the set must have been started with a dirty carbureter, and you answered that it did. I will ask you if the set had not been started before you arrived and you had been given an opportunity to have arrived here and made some examination of the machine and experimented with it before you were forced to start, whether the carbureter would have been cleaned?

Mr. GOUDGE.—We object to that as irrelevant and immaterial and based upon assumed facts not in evidence.

The COURT.—The objection is overruled.

(Plaintiff excepted to the ruling of the Court.)

A. Had they not started till I arrived, we should have examined that carbureter thoroughly—taken off all the doors—and I would have personally ascertained that the machine was in condition, having much more experience in testing out these apparatus. I should probably have got into it more thoroughly than it was done. I would not have taken for

(Testimony of B. S. Pederson.)

granted, possibly, some conditions that were taken for granted.

Q. Have you had experience with these kiln-dried bricks before the test was started, before you arrived here? A. I think not.

Q. You say that when the heat is applied to these bricks [496] they tend to disintegrate, and that they showed signs of that in the generator when they were dropped into the fire. Do you know whether bricks that are properly bricked and sun-dried and are not affected by this kiln-drying, have sufficient stability to maintain their shape in the generator?

A. I have tried out some of those bricks and they have been tried out, and I find that they will hold up if they are properly prepared. Much better than these could. The fact is, we have very little trouble with their disintegrating if they are properly prepared.

Q. Are they subjected to any jarring or hard usage in the generator after they are in the fire?

A. None whatever. The fact is, after the brick arrives in the generator and it is a dried brick, it is apt to stay in that shape until it is consumed, whereas a wet brick or one that is loose, the heat on the exterior of the brick heats up the moisture in the interior and an explosion effect takes place which disintegrates it. [497]

Recross-examination.

The COURT.—To what cause or causes do you ascribe the failure of your test to even approximately reach in production the capacity to which you testify?

(Testimony of B. S. Pederson.)

A. Entirely to the condition of the fuel that was provided for the generator.

Q. (By Mr. GOUDGE.) You stated that properly air-dried brick would stand up in the generator after it is thrown into the fire. What experience or knowledge have you of that fact?

A. There were times during our earlier tests where you gave us comparatively dry brick. I think at one time we had a few as low as 9 per cent moisture. On comparing these with what were given to us with the higher percentage of moisture, we found that they would stand up better.

Q. Now, you refer, when you speak of these bricks that were once furnished you as low as 9 per cent moisture, to some previous runs of the machine before the test?

A. Yes, sir, the previous summer when I was making the test to determine our changes. I think we had bricks of different percentages of moisture. It ran from 21 per cent down.

Q. That was in the summer of 1909?

A. 1909, immediately after the supplemental contract was entered into.

Q. Was that before or after the change was made in the generator. A. It was before.

Q. Otherwise those bricks were the same as the bricks that you used in the test?

A. They were not.

Q. In what other respects did they differ?

A. The ones used in the test were kiln-dried, whereas I [498] don't know of any kiln-dried

(Testimony of B. S. Pederson.)

brick being furnished me prior to that time.

Q. You said, and it is true, is it not, that the bricks which were furnished during the test may have been sun dried or air dried? You don't know about that?

A. That I don't know.

Q. Except for the fact that these bricks furnished during the test had been subject to artificial heat, they were the same kind of bricks that you referred to in the summer time?

A. Not in adhesive power or in any other respect. The ones furnished the previous summer were in much better condition and came to us in better shape, and they stood handling better. While they were not at any time absolutely satisfactory they were so much superior to the ones furnished in the test that there can be no comparison. We could almost call them good, in comparison with what was given us during the test.

Q. State as near as you can the exact time when this satisfactory brick was delivered to you and used, that you speak of—that you say were thrown into the generator and stood up better than the brick used in the final test? A. Did I say it was satisfactory?

Q. Well, more satisfactory.

A. Well, I said better brick than the ones furnished in the test.

Q. All right. I want to locate the time when these bricks were used, so we may know what bricks you referred to.

A. I think it was in the early part of August, 1909.

Q. Was it the experimental run you made next

(Testimony of B. S. Pederson.)

after the making of this supplemental contract?

A. Yes, that is the time I referred to.

Q. How long a run did you make then? [499]

A. I think it was about ten days.

Q. At that time, how much gas per day did you make? A. I don't remember.

Q. Have you any record of that?

A. I haven't got it here. I may have it in San Francisco.

Q. Did you make 3,000,000 cubic feet a day?

A. I did not.

Q. Did you make 2,000,000 cubic feet a day?

A. I think not.

Q. Did you run 24 hours a day during that test?

A. I did not personally, but I think we did.

Q. You understand me when I say did you make so much a day?

A. The apparatus was operated 20 or 24 hours a day.

Q. You understand me to mean when I ask you what it produced in 24 hours, the rate per day of 24 hours? A. Yes, sir.

Q. (By the COURT.) I will ask you one question: To what process could the lamp-black furnished by plaintiff for the test made between March 10th and March 30th, 1910, have been subjected to so as to make bricks suitable for use in this apparatus of that set?

A. The lamp-black should have been dried as we expected it to be down to below 10 per cent, and

(Testimony of B. S. Pederson.)

then pressed in a brick and solid brick. The lamp-black brick furnished us, by reason of the large amount of moisture at the time they were made, became, when the moisture was driven out, a porous, spongy mass.

Q. You claim that the lamp-black should have been brought to the desired degree of moisture before it was made in the form of bricks?

A. That is the idea.

Q. The imperfect process of which you complained is that the lamp-black was not dried or brought down to the proper degree of moisture before being pressed into the form of brick; is that the idea?

A. Yes, sir. [500]

Redirect Examination.

(By Mr. CHAPMAN.)

Q. Did fire-drying have any detrimental effect on them?

Mr. GOUDGE.—We object to that as calling for the conclusion of the witness on a matter on which he has had no experience.

The COURT.—The objection is overruled.

(Plaintiff excepted to the ruling of the Court.)

A. Yes. The fire-brick kiln-drying process seems to have a very detrimental effect on the brick. It caused the brick to become loose and spongy and very easily disintegrated by the mere handling. Much more so than a brick that was made even with a large percentage of moisture and allowed to gradually dry in the sun or in the air. It seems as though that fire-drying took all the binding material out or

(Testimony of B. S. Pederson.)

loosened it up to such a matter—it might in time set and become hard, because the samples that we have here are considerably harder than the others. But the fact that they were kiln-dried and given to us hot afterwards, I imagine, may have had the effect on the brick that it did have.

Q. You were asked something about disintegration of bricks after they went into the fire, and you said that some of them held up better than others, and that those were properly made or made with reasonable substantialness. In pulling out the fires did you ever find any of the bricks unbroken?

A. I wouldn't say that I found any of them unbroken. I found occasionally—we would get a brick out that apparently had the shape, but much smaller than the ordinary brick, and the indication would be that it had not broke in two.

Q. What is this "U. G. I. Company"? [501]

A. United Gas and Improvement Company. It is a Philadelphia concern that operates a large number of gas-works throughout the east. They also manufacture water-gas plants. They manufacture and operate both.

Q. Does coal or coke disintegrate when subjected to heat the same as lamp-black in a fire?

A. No, sir. You can take the entire mass of coal or coke after it becomes incandescent and pull it out of the fire, and it holds its form and you can quench it and put it out on the floor and use it again.

Q. Did you ever see any of this California oil in any water-gas apparatus and notice the results?

(Testimony of B. S. Pederson.)

A. Yes, sir.

Q. You were asked also about the increase in the grate area and raising it from 86 square feet to 140 square feet. Was that 140 square feet in one fuel bed?

A. No, sir. It was in two, divided by the brick wall.

Q. Did the increase in the grate area in the reconstruction of the generator have any effect to prevent dust going over into the carbureter, or would it have any effect if the fuel had been as you expected it?

A. Ordinarily it would have the effect of lessening it because the same quantity of air approximately passing through the larger bed of fuel would travel much slower. It would go through more slowly and would not have the carrying force that it would have in a smaller generator. [502]

[Testimony of E. C. White, for Defendant
(Recalled).]

E. C. WHITE, recalled on behalf of the defendant, testified as follows:

Direct Examination.

(By Mr. CHAPMAN.)

Q. It has been testified that you arrived in Los Angeles some time about December, 1909?

A. December, 1909; yes, sir.

Q. Prior to the time that you arrived how long had you been in the gas business?

A. About 23 years.

Q. How long had you been employed by The Western Gas Construction Company?

(Testimony of E. C. White.)

A. About six or seven years. About six years, I think.

Q. In your experience with gas-making and handling of gas apparatus, have you operated any machines? A. Yes, sir.

Q. Water-gas machines? A. Yes, sir.

Q. A considerable number of them?

A. Yes, sir; both in this country and England and Ireland.

Q. Have you been engaged as erector and installer of such machines? A. Yes, sir.

Q. And have you been employed in any other capacity in the gas-making business?

A. I was eastern manager of The Western Gas Construction Company with offices at New York, when I was ordered to come out here.

Q. Have you had any technical education in the science of gas-making or gas-engineering? [503]

A. No, sir, my education is all practical. I commenced in the office.

Q. You are not a graduate engineer?

A. No, sir.

Q. When you arrived here in December, 1909, was this machine completed?

A. No, sir, it was not completed. The Western Boiler Works were working on it.

Q. Did you take charge or supervision of that work? A. I did.

Q. Were you down there every day?

A. Yes, sir.

Q. From the time you got here till the test was

(Testimony of E. C. White.)

ended sometime afterwards? A. Yes, sir.

Q. Was that work let to the Western Boiler Company by contract or was it done by day labor?

A. It was let to the Western Boiler Works by contract.

Q. Did you take any measures to push the work along and expedite its completion?

A. Yes, sir; we kept it going right along.

Q. Did you assist yourself, by taking part in the work and doing such things that might be necessary to do and that you could do?

A. Very little, because it was let out by contract.

Q. Do you recall about what time the machine was in a condition to first make gas?

A. Yes, sir. I have the records in my pocket.

Q. Refreshing your recollection by referring to those records, can you give us the time when you first began to operate?

A. January 20th, 1910, wasn't it. [504]

Q. Did you make any gas on that day or was that started up?

A. Started up. We made 1,420,000 feet.

Q. How long did you run?

A. We ran until January 24th.

Q. What happened on that day?

A. The blast pipe exploded.

Q. That is the time the explosion occurred?

A. Yes, sir.

Q. Did that interrupt the operations?

A. Yes, sir, that put us out of business for a time.

Q. How long before you resumed experiments with this set?

(Testimony of E. C. White.)

A. February 17th was the next run.

Q. Between the time you shut down in January and when you started up on February 17, were you on the ground all the time pushing the work and preparing to operate? A. Yes, sir.

Q. Besides the explosion of that blast pipe line, was there any other explosion or accident that occurred?

A. Yes, sir, there was a hole left in the scrubber and a spark came over and ignited the gas in the scrubber. It caused quite a lot of damage around there to our apparatus, and that necessitated quite a lot of work to put it in shape.

Q. Were you engaged in replacing and repairing that damage during the period that you were shut down? A. Yes, sir.

Q. On February 17 you started up again. How long did you run? A. We ran till the 28th. [505]

Q. Were you there every day at the works?

A. Yes, sir.

Q. What were you doing during that period?

A. We were operating the machine under different conditions of fuel, to try and get it balanced so that we could go on with the test, but I had about decided that the machine needed more air, and I don't remember whether I had told Mr. Luckenbach that or not. I don't think I had. After he demanded us to go on I proceeded afterwards to put in another airblast.

Q. You had perforated the chutes before?

A. I had perforated the chutes in the last part of February.

(Testimony of E. C. White.)

Q. Do you recall in what manner the chutes were perforated, what the size of the perforations were?

A. They were about an inch and a half wide by three feet long—slits cut in the back of the chute. I just took a chisel and a hammer and ripped out one side and then bent the piece right down.

Q. The machine while you were making these alterations and repairs was not in operation, was it?

A. No, sir.

Q. From your knowledge of what occurred afterwards during the test, for the next three or four days, are you able to state whether or not the carbureter was clean after the work had been done on it?

A. Yes, sir, I found the carbureter was plugged up badly two or three days after I started with the test on the 10th. [506]

Q. What would that indicate?

A. Well, it indicated that it hindered the make.

Q. I mean as to the condition of it on the 10th, if anything?

A. Well, it indicated that the carbureter was in bad shape. I thought that I erred in judgment.

Q. (By the COURT.) The carbureter was in bad shape and what?

A. I made an error in judgment.

Q. What do you mean by an error in your judgment?

A. He asked me if I examined the carbureter to see if it was clean, and I said I thought it was clean. That was my judgment. But after we had been running three or four days it indicated that it was not

(Testimony of E. C. White.)

clean, but that it was very dirty, and I had to clean it afterwards.

Q. (By Mr. CHAPMAN.) Had you any conversation with Mr. Luckenbach on the subject of shutting down one day in seven? A. I had.

Q. Can you state approximately when or at what place?

A. No, sir. I cannot state at what time it took place. It was on several occasions that I reminded him of the fact; when I first came here I talked about it and he always said they would take that up later on after the test and decide on whether we were to be allowed a day a week or not. I remember one time—I think it was on the 26th of January—Mr. Pederson and I were at his office and we talked it up, and at that time he said it was a very good point to be considered and he would take it up and go into it later on. I never could get him to state that he would allow a day a week.

Q. Was there anybody else present besides Pederson, yourself and Mr. Luckenbach at any of these interviews at which the subject was discussed?

A. I think the gas company never in any instance has a conversation with me that they did not call some witness in. [507]

Q. Can you recall who, if anyone, was present on any of these occasions?

A. I know that Mr. Vance was present that day that he called Pederson and I in. It was the day of the accident down at the works. The day that he called us up there and asked us to remove the set and

(Testimony of E. C. White.)
give them their money back.

Q. Did he make any reply to this other statement in this letter to the effect that in case anything happened to the machine that you assumed that credit would be given for the time lost?

A. He said in that case that anything of that kind should be taken up after the test and be dealt with individually and separately, each case.

Q. After the machine had been operated during the test for the period of three days, the 10th, 11th and 12th and 13th, I guess, you then shut down on account of the carbureter? A. Yes, sir.

Q. At or before the time that you shut down did you have any conversation with Mr. Luckenbach about it?

A. Yes, sir; just before I shut down I went to see him about it and told him that our carbureter was in bad shape, and that I deemed it advisable to shut down, as I described it, to take the bull by the horns and get it cleaned out right away, and then I asked him about a day a week. I said, "If we are allowed a day a week as I have understood that we were to have, which is only customary and just, it is my idea that we can lose the two or three days that it will take to rechecker, and go ahead and make up the amount of gas. He said that he never said that they would allow three days. That we could shut down or go ahead and do as we pleased; that it was nothing to them. He would give us no opinion. He said that was our own business. [508]

Q. Did he say anything about allowing credit for

(Testimony of E. C. White.)

any time lost in that way? A. No, sir.

Q. He said nothing about that?

A. No. As I say, he gave no opinion. He said it was up to us to go on with the test—start March 10th and stop on March 30th. That was all there was to it; and as he said before, these things would be taken up individually.

Q. Did you ever subsequently at any time ask Mr. Luckenbach—

The COURT.—What was that? Did he say anything about stopping on the 30th?

A. Yes, sir; that we were to commence on the 10th and run till the 30th and complete the twenty-day test. That we would stop on the 30th.

Q. (By Mr. CHAPMAN.) Did you ever subsequently say anything to Mr. Luckenbach about allowing credit of a day a week in cleaning out, or for the three days lost in recheckerizing?

A. I cannot recall the dates; as I say, it was spoken of several times about the day a week. When I first came here I asked him about it when I learned it was customary, and I brought it up several times to see if he wouldn't say he would allow us that so we could figure on it, but he never would. [509]

Q. (By Mr. CHAPMAN.) Now, in the course of the operation of this machine, during the test, did you have any conversation with any of the officers or employees of the gas company or persons in charge of the works as to the candle-power which you were to maintain?

A. The chief gasmaker in charge of the candle-power.

(Testimony of E. C. White.)

Q. What was his name?

A. I think it was Larrimore. They called him Larry.

Q. How many times did you talk with him about it?

A. I talked with him every day. He seemed to be more interested in the candle-power than in the machine.

Q. State the substance of what was said between you.

A. He would come to me and say, "Your candle-power is a little low," or "a little high." I would say, "What is it?" And he would say "25," or whatever it was, and they wanted the candle-power reduced when it was high in order, as they said, to make a proper mixed gas for the commercial gas for the town.

Q. (By the COURT.) Did you run it up to 25?

A. I said 20.5. No, sir. We never ran it to 25.

Q. Did you run it above 20? A. Yes, sir.

Q. Were they using this gas that you were generating for commercial purposes?

A. Oh, yes. They shut their own machines down.

Q. (By Mr. CHAPMAN.) Was there anything said about the approximate average figure at which they might carry their mixed gas or their commercial gas? A. Yes, sir; they said 19 to 19.5.

Q. Did that have anything to do with your maintaining the candle-power at an average of less than 20?

A. Not at all. We could have 20 candle-power

(Testimony of E. C. White.)

easy enough. [510]

The COURT.—He did not understand the question. Read the question. (The Reporter reads the question.) Connect that question with the one preceding, Mr. Chapman. The witness does not understand it.

Q. (By Mr. CHAPMAN.) Were you informed by this chief gasmaker of the average candle-power which they said they sought and desired to maintain their mixed gas at, or their water-gas that was made by your machine?

A. Yes. He said they wanted about 19 to $19\frac{1}{2}$, and he was telling me about the candle-power being low or high, so I could regulate to suit the condition.

Q. It already appears in evidence that the candle-power of your machine on an average was carried at less than 20. I will ask you why you did not carry the candle-power at 20 or more?

A. Because I considered it was high enough—19 was high enough to give them gas of the required candle-power that they wanted for the mixed gas.

Q. Did you have any conversation with Mr. Luckenbach on the subject of the candle-power?

A. Yes, sir, when I first came here I talked with him about it.

Q. State what took place at that time.

A. In reviewing the conditions of the contract with him I stated that I noticed that the contract called for four and a half gallons of oil per thousand and 20-candle-power gas—20 to 22—and I said that that was dividing the four and a half gallons per thousand into 20 candle-power, and would be 4.44 candle-power per

(Testimony of E. C. White.)

gallon; that that was the way it was usually expressed and meant in contracts with guaranties. I asked him if that would be satisfactory—if that was the way he saw it or understood it, and he said that would be all right. [511]

Q. Do you know whether or not that machine could have made an average candle-power in your operations at 20 or more?

A. It would have been very easy to do it, yes, sir.

Q. What governs or controls the candle-power of gas in a gas machine such as this?

A. It is simply a question of, when the machine is ideal, putting in more oil, or there is another way to do it, and that is to reduce your blast and not have the heats as high, and carry lower heat and put the oil in and that will naturally make it a higher candle-power. But with this set with ideal conditions with the size of that generator, we could easily have put in enough oil to make 20 candle-power gas, had I known they wanted it and were going to hold now that they maintained that the contract called for it and they insisted on it, I could easily have done it.

Q. Do you know whether any track was kept of the carbon that was removed from the ash-pit and also the collection-chamber described in the carbureter?

A. Yes, sir; it was weighed and credited, I don't say credited, but it was reported to me—the weight—and I made a note of it from day to day.

Q. Have you got the memorandum on which you noted the record of the ash or carbon removed?

(Testimony of E. C. White.)

A. I have. I did not weigh it the first three days of the run. It was averaged.

Q. Have you got that memorandum with you?

A. Yes, sir.

Q. Will you please produce it?

A. Do you want me to read it?

Q. Let me ask you first, is that a memorandum of weights given you with the exception of the three days that were averaged? [512]

A. It is two days that I have marked the average—the 10th and 11th are the two days that I have averaged—instead of three.

Q. And those weights, you say, were given you by the gas company employees who had charge of that matter? A. Yes, sir.

Q. And did you note them on that memorandum?

A. I did.

Q. I will ask you to refer to the memorandum and state what the weights were for each day.

A. The following is a statement of the weights of the waste or ash, being the fine stuff that came out of the bottom of the generator and the uptake flue of the carbureter. There were no weights taken for the 10th and 11th, but

March 12	4850	pounds
13	6000	"
14	7350	"
15 & 16	none	
17	2200	"
18	9750	"
19	10500	"

(Testimony of E. C. White.)

March 20	5450 pounds
21	7550 "
22	9000 "
23	10100 "
24	8465 "
25	8000 "
26	4600 "
27	2150 "
28	4300 "
29	5300 "

For the 10th and 11th there were no weights taken, but I [513] made a proportionate estimate for those two days by taking five or six days subsequent and averaging it according to the amount wasted on those days in proportion to the gas made, and figured the approximate amount, and my estimate was 12,000 pounds for the 10th and 9,000 pounds for the 11th.

The total waste carbon that did not go into the generators but which fell through the slots in the chutes on each day are the following:

March 10	11100 pounds
11	16200
12	14050
13	20325
14	not weighed
15	shut down
16	not weighed
17	32800
18	28675
19	16250
20	10850

(Testimony of E. C. White.)

March 21	7550 pounds
22	13960
23	23700
24	9720
25	13700
26	18900
27	12375
28	7900
29	12100

We got credit for the waste that came through the chutes. That which came from under the grate bars out of the chamber in the carbureter, while it has been referred to as ash, is not all ash. We had a door on the side of the carbureter [514] and the materials removed from there twice a day, morning and evening, but no record was kept of that separately from that taken from under the grate. It was removed from the place where it came from the chamber in wheelbarrows. Some days there would be a great deal more taken out than others. The material that came from the carbureter chamber and a considerable part of that that came from under the grates was lamp-black. [515]

Q. When you came here in December, did you make any examination of the brick that they had piled up across the street for use? A. I did.

Q. What examination?

A. I looked at them piled up there.

Q. Did you handle them at all? A. I did.

Q. Do you know when the kiln-drying started?

A. No, I cannot state exactly. I think it was in February.

(Testimony of E. C. White.)

Q. How did the brick compare, as you examined them prior to the kiln-drying, at the time you came here, with the brick that was kiln-dried—I mean as to tensile strength and the physical qualities?

A. In kiln-drying the bricks, it undoubtedly destroyed the tensile strength and they went to pieces very rapidly and easily. They would not stand handling.

Q. Did you handle any of the kiln-dried brick with a view to ascertaining their strength?

A. No, sir, I did not give it much attention till we commenced the test and got into trouble.

Q. I mean after the test started?

A. After the test started I certainly did.

Q. Can you describe in a general way how much handling they would stand and how easily they might be broken? [516]

A. The principal and most perceptible observation of their breaking was from the time they left the hole down in the ground and got up on the chute—became dumped over. And they had a severe fall from there down to get into the bottom of the bin that connects into the chute. They came tumbling over each other and rattling down and hitting that gate and bouncing over each other. That is where the severe strain was on the brick. It knocked them all to pieces.

Q. Was it worse some days than others?

A. Yes, sir.

Q. Did it create any dust or clouds of material in the air while they were going up in that manner?

(Testimony of E. C. White.)

A. The dust was something fierce. You couldn't recognize a man while you were charging, standing two feet from you. It was just one mass of dust from the fine and dried kiln-dried bricks. The dust they formed was like you take a dusty street with a dozen horses stampeding. It was something fierce.

Q. You observed some portion of the fine stuff and broken material finding its way through the slits in the chute and falling to the ground?

A. There was a great deal went past the chutes. The heavier bricks pushed on through, they went in so rapidly.

Q. Was there any considerable quantity that did not go through the slits, and passed into the generator?

A. I should say that the slits would not be able to catch one-half of the fine stuff that went into the generator, not counting the broken bricks. It was exceptional that a whole brick ever went in. They were generally broken in two. But if they were all like that, we would not have complained—if they had held together in that respect. But they went apart in pieces. [517]

Q. What effect did it have upon the fire?

A. It had the effect of deadening the fire and packing it. (Question and answer read.)

Q. What do you mean by that?

A. I mean to say that if 30 per cent of fine stuff was caught on the floor through the chutes there was at least 30 per cent more of fine stuff that went by the chutes that did not fall, and went into the

(Testimony of E. C. White.)

generator. That is, of course, only estimated. I had no way of telling the exact amount. But the amount of fine stuff that went by was material—very material.

Q. How great in quantity was that which went into the generator?

A. You mean from the time the bucket turned?

Q. Yes, the perforated portion of it.

A. I should say it was 25 or 30 feet from the top to the chute, and then from the chute over to the mouth of the generator is about 10 or 12 feet.

Q. And was it steep or on a gradual incline?

A. The top bin or first bin where the bucket dropped in the air, was very steep coming down; and from there on what we call the chute, that was hinged onto the bottom of this bin, and was not so steep.

Q. Did the bricks travel with considerable velocity through the perforated portion of the chute?

A. When the chute was nearly empty they would drop from the top to the bottom just like a man taking a brick and throwing it right down. But, of course, as the chute was filled up, which was part of the time, they did not have such a high fall.

Q. Was that entire portion that you have described—the [518] 12 feet—close to the generator and the remaining portion—the steep part—all perforated?

A. No, sir, it was not all perforated. The chute that was perforated I think was only perforated up about 12 feet high. It was perforated—as I stand on the floor I could reach it, down from where the re-

(Testimony of E. C. White.)

porter sits, up about that far (illustrating) where I had slits cut. And then there was another section where I had a man get up and perforate that for about five or six feet.

Q. (By the COURT.) Was that done after you began the test or before?

A. Before the test. It was done just prior to the test, in February.

Q. (By Mr. CHAPMAN.) What was the appearance of the fire after this fine stuff was dumped in there?

A. It was a close sort of a mass, packed and not open as it should be in order to get good results. They should have been whole or half bricks tumbled around so that the air or steam could get around them or perform their functions.

Q. Did that condition necessitate any increased pressure-blast?

A. Yes, sir; I gave it all the blast that I had.

Q. Why was that necessary?

A. In order to try to get air up through the fire, it was so packed.

Q. Did that have any effect on the amount of fine stuff that was carried over into the carbureter?

A. Unquestionably. The air forcing its way up through would get what is called a blow-hole and blow through, and form a regular whirlwind of suction, as it were, and carry the stuff over. Whereas, if it had been heavy and good big lumps, the air would not have picked it up. I have observed the same [519] in making gas where they use coke.

(Testimony of E. C. White.)

The coke is very light and the pieces are small, and if the blast-pressure is heavy it will take the small pieces of coke and breeze over.

Q. After you had the carbureter rechecked and started to make gas again, did you have any unusual trouble with the fuel?

A. Yes, sir, on the 17th was a very bad day. We started, I believe, on the 17th. The first day we commenced to operate we got a bad dose.

Q. Did you take up the matter with Mr. Luckenbach at any time? A. Yes, sir, I wrote him.

Q. You wrote this letter of March 18th, marked Plaintiff's Exhibit 24, protesting against the character of the fuel? A. I did.

Q. In response to that letter did you receive any visit from or have any conference with Mr. Luckenbach? A. He wrote me, I believe.

Q. He wrote you the letter dated March 18, 1910, marked Plaintiff's Exhibit 25?

A. Well, he wrote me.

Q. You recall the circumstances that Mr. Luckenbach testified concerning himself and Mr. Edwards calling at the gas plant and having an interview with you? A. Yes, sir.

Q. What is your recollection of what took place at that time?

A. That was, I believe, the morning of the 22d. May I ask if that was the date—

Q. I am referring to the interview that Mr. Luckenbach referred to as having taken place on the 18th, and I think he fixed the time by a memorandum he had. [520]

(Testimony of E. C. White.)

A. That was not the 18th. That was the next complaint I made about hot bricks.

Q. Your recollection is that it took place on the 23d?

A. I don't know what date it was. It was after this occurrence. They went on for a couple of days and I went down there, and I think it was on the 22d, and I found that they were serving hot bricks or warm bricks, and these were crumbling so that everybody around the works was talking about it—the drivers, the chemist and the gasmakers. It was the common talk that the bricks would hardly hold up till they got across and started to dump them down in the hole. They had to handle them very carefully. It was a good thing that they did. They were warm and ready to crumble to pieces at the slightest touch, and we were getting such a tremendous quantity of fine stuff that morning that I wrote another letter and sent it up to Mr. Luckenbach by a messenger, protesting against the hot brick. I was about ready to give up at that time.

Q. I show you Plaintiff's Exhibit 26, and ask you if that is the letter you refer to having written on that occasion? A. This is the 23d.

Q. Yes. A. Yes, sir.

Q. (By the COURT.) What is the form of lamp-black before it is bricked?

A. It runs off with the water from the oil-sets. Being lighter, it floats on top of the water and some of it going along with the water. They run it along with the water to the settling bins and then draw off

(Testimony of E. C. White.)

the water from the bottom and leave the lamp-black in the pit and let the sun dry it until they get ready to take it and put it in wagons and carry it over to the briquet machine, and there they have what [521] they call a Cummers Drier, which is similar to a big cylinder similar to what is used in making cement—and they dry it out in that way by shoving it in from one end of the cylinder and it rotates along to the other end, the fire under the cylinder heating it. They put it then in a mold and press it in the shape of bricks.

Q. What is the condition of it as to being less than 10 per cent moisture? Does it cake up or disintegrate?

A. It cakes up and you can squash it in your hand.

The COURT.—It is friable.

A. Yes, sir.

Q. How could that answer for fuel in one of these water-sets before being bricked? Couldn't you use it as fuel with any results?

A. Not unless it—I don't believe it could. I don't think it would have the tensile strength. You have to press it together.

Q. Suppose you were to shovel it into your wagon and dump it into the generator; does it accomplish any results as fuel?

A. I think the results that would be obtained would be very inefficient. In fact, I know in San Francisco where they have used it in lumps they made the claim that they got about half the efficiency that they do where they brick it.

(Testimony of E. C. White.)

Q. (By Mr. CHAPMAN.) I do not understand that to be the Court's question. Suppose it was shoveled in in a fine state?

A. He said when the state of moisture was 20 per cent.

Q. Yes, or less than 10 per cent.

A. The result obtained in that case, I think it would about the same condition that we had. No results at all. The steam penetrating the fine stuff kills the fire. There is no body. Nothing to work on.

[522]

Q. How about the particles blowing over to the carbureter?

A. It works that way. It is so fine and light that an extreme blast pressure that we were obliged to put in there carried it over.

Q. In other words, it would not be practical fuel in that shape? A. Absolutely impractical.

Q. Did you call Mr. Luckenbach's attention to the condition of the bricks being hot?

A. Yes, sir. He came right down to the works with Mr. Edwards and wanted to know what the matter was. I told him the bricks were hot and that it was useless to go on under such conditions, and I asked him if he would—if it would be agreeable to him if I would take the wet brick that he had and use half and half—half wet and half dry—to see if we could not build up the fire and get some results, and he said no, we had to use what they gave us. We asked for carbon having less than ten per cent moisture in, and they kiln-dried it, and that is what we

(Testimony of E. C. White.)

had to use. I showed some of it to the superintendent in his office. He said that didn't make any difference; that it was up to us.

Q. On that occasion or any other occasion did you tell Mr. Luckenbach that the bricks as you had received them had been satisfactory?

A. I did not.

Q. Or in answer to any question of Mr. Edwards as to your satisfaction or dissatisfaction with the bricks, did you make any such reply?

A. Absolutely no. I did not write that letter complaining of the bricks and change my mind in ten minutes from the time they had gotten that. [523]

The COURT.—What did you say when he came down?

A. I said that the bricks were something awful; that I couldn't make gas with them; that they were crumbling so that it was impractical and it is absolutely useless to continue trying, and bring about some such result; that the carbon was ruined on account of being kiln-dried; that the bricks would not stand up at all; there was no tensile strength. And I asked him if it would be agreeable to let us use some of the moisture bricks, stating that they couldn't be any worse than these and we might be able to work out, and he said no.

Q. (By Mr. CHAPMAN.) You say you exhibited some bricks or samples and broke them up; did you break them up in their presence?

A. I took the bricks in and showed them to them in the superintendent's office, and showed them how they crumbled.

(Testimony of E. C. White.)

Q. Did they crumble?

A. They did. They were full of fissures. The heat in driving the water out had undoubtedly loosened up the openings or fissures.

Q. Was it difficult to break them or could you do it easily with your hand?

A. I broke them easily.

Q. How about the one that you showed them? Did that exhibit the same characteristics, being easily broken? A. I took in three or four.

Q. How about them in that regard?

A. They were all bad. I didn't want to take in one to them; I took in three or four; as many as I could carry.

Q. Did he come over and look at the conditions that day?

A. No, sir. I asked him to come over and look at it. He had never been over there to my knowledge. He said he [524] wouldn't come over and dirty his clothes going over there.

Q. During the test or afterwards did you take any samples or any of these bricks, Mr. White, and deliver them to any chemist for analysis?

A. Yes, sir.

Q. To whom?

A. To a Mr. Maas, chemist for the Braun Chemical Company.

Q. Did he make any report to you of the results of his analysis? A. He did.

Q. In order to refresh your memory as to the dates when the samples were given to him, I call your at-

(Testimony of E. C. White.)

tention to these three purported reports of the chemist, and ask you if from those you can state the place from which you took the samples or from which the samples were taken, and the dates, and what they were. A. This first one that I hold—

Q. You understand, Mr. White, that you can examine the statements and refresh your memory as to the dates?

A. Yes. I can testify to these. One is a kiln-dried brick taken from the kiln-pile, May 28th, 1910, and I have here another sample taken in a sample can, of the run of March 12, showing the amount—showing the analysis—and another report of carbon taken from under the grate of the generator, May 28th, 1910.

Q. Do you know whether Mr. Maas was present at the time that last one was taken that you refer to?

A. No, sir, I cannot testify to that.

Q. Was he present there on any occasion?

A. I cannot state whether he was or not.

Q. What did you do with these samples that you refer to?

A. I took them to Mr. Maas or he came to the works and [525] got some himself, and I don't know which are the ones he got and which are the ones I took to them.

Q. Were you present when he did take them?

A. Yes, sir.

Q. Now, as to these samples of kiln-dried brick that were submitted to Mr. Maas and which you have referred to after refreshing your memory from his

(Testimony of E. C. White.)

reports, where were they taken from?

A. They were taken from the yard over there where they were kiln-drying. They are all kiln-dried.

Q. Were they a part of the piles from which the fuel had been taken and was delivered to the generator during the test or not? A. They were.

Q. Do you know whether they were representative samples of the fuel that was delivered to the generator?

A. Yes, sir, I picked them out of the pile. They were all substantially the same.

Q. Was the fuel better on the first day than it was the following day?

A. It was not as brittle. There was sometimes when it was not quite as brittle as the others.

Q. Well, if you had brick that were not quite as brittle and as good as those used on the first day, I mean from the 10th of the month, do you think the machine could have made an average of 2,700,000 feet per day? [526]

A. No, sir, I think it would fall down. I am strong in the belief that kiln drying spoils the brick. They got worse from the first day; they kept packing and getting worse. The first day was not so bad.

Q. If you had had a fuel in the form of bricks substantially and strongly made, with a moisture of less than 10 per cent, what would you say in your opinion as to the quantity of fuel consumed per thousand feet?

A. If we had had sun-dried brick *such we used*

(Testimony of E. C. White.)

there first, it would have held together. I know they would because I had slapped them together and punched them around. It was only problematical what we could have made with the machines readjusted as she was during the last test. We had never run the machine with the second air line on the former or preliminary test. We went right on from the 10th of the month with a new line which increased the efficiency of the machine, and there is no telling how much could be made with substantial carbon.

Q. But I am talking about the fuel consumption—the quantity of fuel consumed per thousand feet of gas made?

A. Well, I can't state that consumption. I don't feel prepared to say. I have not had the experience in the carbon and I cannot testify as to what might have been or what might not.

Q. I don't expect you to state any positive result that would be obtained, but merely the expression of an opinion, if you have an opinion, which you think is substantiated by experience.

A. I would not feel competent to answer the question how much it would make. I can simply state from the observation of the carbon the conditions would have been materially better and more in our favor for making more gas. [527]

Q. Did you see the machine after the test was ended, after the machine was shut down? A. I did.

Q. When was the test closed?

A. On March 30th.

Q. The morning of that day?

(Testimony of E. C. White.)

A. The morning of the 30th.

Q. Do you know whether there was any more fuel furnished there for a continuance of the test?

A. There was fuel left, but we were given to understand on the morning of the 30th that that was the end of the test, and I made no attempt to go on.

Q. Do you know whether there were any operators furnished by the gas company to proceed and continue with the performance?

A. I cannot state, but as I say, the test was to run from the 10th to the 30th, and, so far as I know there was nothing said about going on till later.

Q. How long after that before you saw Mr. Luckenbach? A. I saw him during the day on the 30th.

Q. Where?

A. I believe at Mr. Trippet's office. I don't know. I think so. I think I was over at his office and we went down to Mr. Trippet's office.

Q. Relate what took place between Mr. Luckenbach and yourself.

A. I went up to see him and he says we had fallen down and didn't come within a mile of making the guaranty, and that it was just as he expected, and I told him that I was satisfied we could make it if he would allow us to go ahead and clean the machine up and make a few minor repairs and put a new gasket in and protect the generator head by a couple of I-beams, and rechecker the carbureter and superheater,—that we could demonstrate that we could make good. He said the test [528] was over and settled, and that we hadn't made good,

(Testimony of E. C. White.)

and that was all there was to it.

Q. (By the COURT.) What time was that?

A. In the morning.

Q. Where? A. At his office at the gas works.

Q. On the morning of the 30th?

A. Yes, sir; after we got through the test. I don't know that I tabulated my report, but I kept in pretty close touch with what was going on down there, regarding results, at least, and he was very forcible in saying that it was over; and "You are through now, get out"; and they wanted their money back and for us to take the machine out. And then we went to Mr. Trippet's office after dinner in the afternoon and Mr. Trippet told them we had been to a great expense there and we had shown results, and we were willing to go ahead and make a demonstration, and wanted to do what was right and convince them that the machine was all right. Well, it was all unsatisfactory to Mr. Luckenbach. I don't remember exactly what he said, but he was very mad and disgusted and wanted to wash his hands of the whole thing.

Q. (By Mr. EDWARDS.) Was there anything said about the character of the fuel at that time?

A. I don't know whether we talked about the character of the fuel at that time, but we talked about it so much that it got to be an old story. They all knew how I felt about it. I told him or as much as told him there was no use continuing under such conditions; that we couldn't do anything with that fuel; that the kiln-drying had spoiled it.

(Testimony of E. C. White.)

Q. In your proposal to make a new test or demonstration was anything said about the character of the fuel that you used?

A. I don't know that we took that up. [529]

Q. (By Mr. EDWARDS.) Was anything said about any defects in the machine at that time? I mean in the way of breakage or damage or dilapidation?

A. Yes, he said the machine was in a dilapidated condition and not fit to go on. I explained to him they were only mechanical defects that could be fixed for a few hundred dollars, that the test had been very severe on the machine and the performance of the machine to my mind, barring the leak in the gasket which was very annoying—and which was quite a loss to us—the gas we lost—however, it was only a mechanical defect; that the Western Boiler Works in putting the gasket in, it got to leaking and we could not stop during the test to tighten it up or change it. But, barring a few minor details of that description, there was only eleven minutes of the whole twenty days that was lost—five minutes was in looking at the seal, taking the plates off, and six minutes one time when the valves got stuck. Eleven minutes altogether.

Q. You mean exclusive of the three days?

A. Exclusive of the changing of the carbureter and the coaling in the morning and evening.

Q. Did you say anything about willingness to repair the defects if the machine was accepted?

(Testimony of E. C. White.)

A. I told him we would gladly put the machine in good shape and make a demonstration and convince him the machine would make good. I felt that it could in proper condition.

Q. (By the COURT.) What do you mean by proper condition?

A. Proper fuel that had tensile strength.

Q. (By Mr. CHAPMAN.) Were you sincere in that offer and belief that you expressed to him?

A. I was.

Q. Was any such remark made by the officials of the gas company, or was it a mere conclusion?

[530]

The COURT.—Anything other than those he has already testified to. He has already testified to some remarks made. The objection is that it is an inference for the Court to draw. This witness is about to testify to remarks made by Mr. Luckenbach. Now, are there any other things that led you to that inference?

A. Mr. Luckenbach was extremely bitter to our company and antagonistic, and said we were a crooked bunch, and never did anything right in our lives, and were not capable of taking a contract and fulfilling it, and there was not a gas company in the state that had any use for us. He said first there was not a gas company in existence, and I says, "Do you mean to insist on that, Mr. Luckenbach?" and he said, "Well, in the state then." He was extremely bitter.

(Testimony of E. C. White.)

Q. (By Mr. CHAPMAN.) Did you go down there at any other time after the test accompanied by any other gas men?

A. Yes, I took a couple of men down there.

Q. State at what time and who they were?

A. I think it was April 20th. I took Mr. Caldwell and Mr. McGillibray down to look at the condition of the set.

Q. Did you look at the machine at the same time?

A. I did.

Q. What condition did you find it in?

A. The checker brick in the superheater had tumbled at one side about four or five feet in and four or five feet down, and the generator had leaked. But not making gas at that time, you would only know that from past experience. The generator head had bulged up slightly, and raised the cast-iron floor a little bit, but as it cooled off later on, it was hardly perceptible. It had gone back. The generator neck when we first commenced to run had bulged slightly, but it never gave us any trouble after that. There was a leak of gas between the carbureter and the superheater in the nozzle at the bottom. I cannot recall anything else just now. [531]

Cross-examination.

Q. Mr. White, you testified that you had an experimental run of this plant on January 20th, and I think at that time you operated it until the explosion took place. Is that right? A. Yes, sir.

Q. When that operation was made on January 20th, was the generator in the form that it was in

(Testimony of E. C. White.)

when the final test was made? That is, as to the division—the changes had been then made in it, had they? A. Yes, sir.

Q. This brick division had been put in and the other changes made in the generator that have been testified to? A. Yes, sir.

Q. So that the generator was in the same form and had the same grate area and divided in the same manner that it was and had at the time the final test was made? A. Yes, sir.

Q. And the grate area we have been informed by another witness was about a hundred and forty square feet, taking the two sections of the generator together? A. Yes, sir.

Q. On that day, January 20th, you testified that the make was 1,420,000 cubic feet; is that correct?

A. That is right, yes, sir.

Q. And that was the day you started up on that experimental run? A. Yes, sir.

Q. You ran until January 24th when the blast-pipe exploded. What was the make on the next day after January 20th, namely, January 21st? [532]

A. 1,595,000 feet.

Q. And January 22d, what? A. 1,959,000 feet.

Q. And January 23d? A. 1,915,000 feet.

Q. Then, you did not run the whole of the 24th?

A. No.

Q. Do you know what quantity of fuel was consumed in making those quantities of gas on those days respectively? A. I do.

(Testimony of E. C. White.)

Mr. CHAPMAN.—I object to the witness answering the question for the reason that the data from which the fuel consumption was to be ascertained is already in evidence, and his statement would be a mere calculation. * * * I thought he was inquiring about the final test. We withdraw our objection.

Q. (By Mr. GOUDGE.) Please state what quantities of fuel on those days respectively were used?

A. The 20th was 86,520 pounds; on the 21st, 121,890 pounds; on the 22d, 111,905 pounds; on the 23d, 95,900 pounds, that was before the new blast line was put on.

The COURT.—What is the requirement of the contract about fuel?

Mr. GOUDGE.—35 pounds per thousand cubic feet. So that for 2,000,000 cubic feet there would be 70,000 pounds.

The COURT.—That is about 35 tons?

Mr. GOUDGE.—Yes, except that all our figures are in pounds of carbon.

Q. Now, you operated for 15 or 16 days in February, 1910—

The COURT.—Is that method of carrying it in pounds instead of tons arbitrary, or is there some advantage in it?

Mr. GOUDGE.—There is a little advantage in it. Another point is that the contract says 35 pounds to a thousand feet, [533] and it is difficult to convey that unless you keep it in pounds.

Q. You operated again for 15 or 16 days in Feb-

(Testimony of E. C. White.)

ruary, did you not?

A. I think only 10 days, and a portion of another day.

Q. Starting up on February 17th, and running till the 28th, I believe you testified? A. Yes, sir.

Q. At that time you had repaired or some one had repaired the blast line which had collapsed in January? A. Yes, sir.

Q. How much gas per day did you make during that February run?

A. February 17th, 1,704,000 cubic feet; 18th, 1,751,000 feet; 19th, 1,790,000 cubic feet; 20th, 1,872,000 cubic feet; 21st, 1,811,000 cubic feet; 22d, 1,540,000 cubic feet; 23d, 1,561,000 cubic feet; 24th, 1,500,000 cubic feet; 25th, we were shut down perforating chutes; 26th, 1,644,000 cubic feet; 27th, 1,532,000 cubic feet; 28th, 1,294,000 cubic feet. That is all.

Q. Please give the consumption of fuel on each of those days respectively, in pounds?

A. Fuel in pounds: February 17th, 109,950 pounds; on the 18th, 99,000; on the 19th, 124,755 pounds; on the 20th, 94,715 pounds; on the 21st, 115,760 pounds; 22d, 93,500 pounds; 23d, 100,800 pounds; 24th, 62,300 pounds; 26th, 107,200 pounds; 27th, 71,950 pounds. That is all.

Q. (By the COURT.) If the capacity of the generator or apparatus is such as you have testified, how is it that you account for not making a larger production for the amount of fuel that you consumed on this test?

A. We didn't have enough air, and after this test

(Testimony of E. C. White.)

and prior to the final test we added another 20-inch blast-line [534] which gave us the increased efficiency.

Q. (By Mr. GOUDGE.) Now, Mr. White, what kind of fuel did you use during the January run—January 20th to 24th.

A. We used lamp-black.

Q. In brick form? A. In brick form.

Q. In February run, the 17th to the 28th, what kind of fuel did you use?

A. Lamp-black in briquet form.

Q. Where did these bricks come from? They were bricks made by the Los Angeles Gas and Electric Corporation, were they not? A. Yes, sir.

Q. How did the tensile strength of these bricks compare with those used in the final test from March 10th to March 30th?

A. Oh, they were much better; they were much stronger in tensile strength.

Q. But otherwise, they were from the same lot of brick?

A. Some were sun-dried and some were fresh brick just made.

Q. On the 25th of February, during the February run, you say you shut down and I also understand you to say that on that day you perforated the chute? A. Yes, sir.

Q. Prior to that time the chute had not been perforated? A. No, sir.

Q. What was the reason for perforating the chute on the 25th of February?

(Testimony of E. C. White.)

A. I wanted to get all the fine stuff out that I could.

Q. Had any of the brick used by you, if you know, in the January run that you testified to, or the February run, been kiln-dried? [535]

A. Not that I know of.

Q. Do you know what the moisture content was?

A. Yes, sir.

Q. What was it? A. For each day?

Q. No. State an average, if you can, or a range of the moisture content.

A. I have each day all kinds. From 3 per cent to 12 per cent and up. Wait a minute. I have one 3.9 and from that up to 27.

Q. Is that true both for the January and February run?

A. No, I didn't have any as dry as that in January.

Q. What was the range of the moisture content in the January run? A. $8\frac{1}{2}$ to 27.

Q. Did you know each day what the moisture content was? A. I did.

Q. It was not any bricks that were passed to you without your knowing what you were getting? I mean there was no concealment about it?

A. The chemist made the analysis and gave it to me.

Q. Were you demanding at that time brick of less than 10 per cent or insisting on brick of less than 10 per cent moisture?

A. No, sir. I was trying an experiment.

(Testimony of E. C. White.)

Q. It is a fact, is it not, that you wanted brick of different moisture so that you might try them?

A. Yes, sir, and I thought we were supposed to try the different brick to see how they acted.

Q. Did you discover by means of these two runs any definite relation between the moisture content of the brick used by you and the efficiency of the operation of the machine [536] measured in feet of gas produced per pound of carbon used?

A. No, sir. I did not consider that I ran the machine long enough and got distinct carbon often enough to give an opinion on that.

Q. These two runs do not disclose any such relation? A. These two runs would not.

Q. They did not? I am asking you did they? Not would they in your opinion, but did they?

A. They gave the results. I have got the whole thing tabulated.

Q. And do those results disclose any ascertainable relation between the moisture content of the brick used and the efficiency of the machine as shown by the quantity of gas produced, per pound of carbon consumed?

A. I can't say that I was proficient enough with the machine and knew the conditions well enough to make comparative tests of that kind and give efficiency.

Q. At any rate, you could not ascertain any such relation by reason of these two runs?

A. No, sir.

Q. And your experience with these different

(Testimony of E. C. White.)

classes of fuel? A. Yes, sir.

Q. You were asked whether or not you advised Mr. Luckenbach on January 24th, that is, the date of the explosion of the blast line that you were going to commence the test on March 1st. Do you recall that question?

A. I did not tell Mr. Luckenbach that I would begin because I did not feel that I was ready by any means.

Q. Did you tell anyone connected with the gas company at that time? A. No, sir. [537]

Q. What was the condition of the set at 6 A. M. of March 10th? Did you have your heat up?

A. I had the heats up.

Q. And it is a fact, isn't it, Mr. White, that on the morning of March 10th, when you began this final test you believed that the set was in good condition for commencing the test?

A. Yes, sir, I thought that I had taken too little time to get the heat, but I was perfectly satisfied with it at 6 o'clock in the morning. Everything was all right. I looked at the grate bars. There was water under the bars and they were in good shape.

Q. And when the clock struck 6 on March 10th in the morning you were ready to commence the final test? A. Yes, sir.

Q. Now, you have described the slit in this chute as being an inch and a half wide and about three feet long. How far apart were they?

A. I should say three inches or four inches.

Q. And the slit would be three feet long. And

(Testimony of E. C. White.)

what interval would there be between the end of that slit and the next slit on a direct line below it?

A. Probably six or eight inches.

Q. Would the next slit down the chute be in a direct line below the first, or would it be to one side? Was it alternating slits as you passed down—did you alternate the slits and the spaces between them?

A. I don't remember whether they were alternated or straight down. I think they were straight down.

[538]

Q. And on the 14th, finding the carbureter in the condition it was in, your conclusion is that it was not as clean as you thought it was on March 10th?

A. That is the idea.

Q. But it is also true that if the carbureter had been inexpertly managed and too much oil furnished to it this same condition of the carbureter might have been brought about in the three or four days it was run? A. Yes, sir.

Q. Now, when you discovered this condition of the carbureter you determined that in the interests of the corporation of the machine and the success of the test it was best to close down and clean it?

A. I did. [539]

Q. At that time you stated in your direct testimony that you referred to the custom of shutting down one day a week? That is, I mean you referred in your statement to Mr. Luckenbach? A. I did.

Q. You didn't know anything about that custom of shutting down one day in seven till you came here to Los Angeles, did you?

(Testimony of E. C. White.)

A. I knew it was customary to shut down any kind of a piece of water-gas or oil-gas apparatus occasionally to burn out.

Q. But not one day in seven?

A. Not necessarily one day in seven.

Q. And, in fact, the custom that you speak of and refer to was the custom that you understood or discovered that the gas company followed with respect to the operation of its water-gas set?

A. They were in the habit of doing it and I thought it would be as good a way to burn it out as any, and I asked that we be allowed one day a week as it was the custom they had.

Q. The custom you refer to was their custom?

A. Yes, sir.

Q. And it was a custom that you learned of only when you came here?

A. In this particular system; yes, sir.

Q. Now, when Mr. Luckenbach refused to make any agreement or make any concession on that point and to agree that you might do that, you replied that you thought you could make it up anyway, or something to that effect?

A. He didn't refuse. He always said he would see.

Q. He didn't agree? He indicated that he would not agree then?

A. That is the idea. He never would agree to it but he always said he would see. [540]

Q. And then you said you thought you could make it up anyway?

(Testimony of E. C. White.)

A. I thought by shutting down I could catch up in what I would lose for a day or two.

Q. And you said so? A. Yes, sir.

Q. What did you mean by stating that you thought you could make it up?

A. I knew that with the carbureter in that condition, it would be folly to continue, and I mean by shutting down that we would clean the set out and make up more than we lost in the operation.

Q. That is to say, by closing the set down, even though you closed it down for two days or three days and thoroughly cleaning the carbureter, you would probably be—on the morning of the 30th—you would have made more gas, in spite of the cessation of operations for two or three days, than you would if you continued to operate?

A. I had that in mind. The three days that was in my mind—that I was to get that three days—and I always did have that in mind. I thought it was right and just that we should, and I thought we would in the end, and that he would come around to see it in that way.

Q. I understand. But I am asking you whether your statement and your belief that you could make it up—whether you did and do not mean by that that in the end, that is, by the morning of March 30th, you would make even more gas by stopping and cleaning for these two or three days than you would if you went right along without cleaning?

A. I had in mind the allowance of the three days. At the same time, I knew we could make more by

(Testimony of E. C. White.)

shutting down for three days, even if he wouldn't allow it, than by continuing. [541]

Q. That was what you meant by "making it up"—that you would overcome that handicap by the cessation of the three days?

A. I will not say that I would make more by shutting down, but I cannot concede the fact that I meant that I would throw out the three days and still make 40,000,000 cubic feet.

Q. If that is true, why didn't you go on in spite of your dirty carbureter and keep the plant in continuous operation? Isn't it true that if you did that you would make less gas than you did actually make up to the morning of the 30th—in your opinion?

A. Yes, I think I would have made less gas.

Q. You understood when you started this test on March 10th that the test would run from March 10th to March 30th? A. I did.

Q. And when you stopped operations on the morning of March 30th it was not because somebody came to you and demanded that you should stop, or that you were forced to stop, but you expected to stop at that time so far as this test was concerned?

A. That was the understanding.

Q. What other gas set or kind of gas set have you operated besides this within a year or two?

A. Water-gas sets.

Q. Using what fuel and where?

A. Coal—anthracite coal and Pennsylvania oil—Texas and Pennsylvania oil.

Q. And coke? A. Yes, sir.

(Testimony of E. C. White.)

Q. Any other lamp-black set?

A. Oh, I ran an oil set in Texas.

Q. And any other lamp-black set?

A. No other lamp-black set similar to this.

Q. And by lamp-black set I mean any other set using lamp-black as a fuel? [542] A. No, sir.

Q. You had not operated any other?

A. No, sir.

Q. Was there any fine carbon carried over to the carbureter during those experimental runs of January and February, 1910?

A. Oh, there must have been some.

Q. Don't you know? You operated the set during that time? A. Yes, sir.

Q. Was there, or was there not?

A. There was, certainly.

Q. And there were ashes and material in the ash-pit during these two experimental runs? A. Yes.

Q. And you are not able to say whether it was greater or less in proportion to the quantity of fuel produced or the quantity of gas produced on those occasions than it was on the final test?

A. I did not weight it and I would not want to qualify on that.

Q. In your letter of March 18th, 1910, to the Los Angeles Gas and Electric Corporation, attention Mr. Luckenbach, which is marked Plaintiff's Exhibit 24, protesting against the character of the fuel, then "being hauled this morning," you say, "If you can give us a grade of fuel similar to what we have previously had we can undoubtedly work the fine stuff out and

(Testimony of E. C. White.)

build up the fire again." What fuel were you referring to when you say the fuel "similar to what we have previously had?" [543]

A. Well, I meant the sun-dried fuel.

Q. And when had you had that?

A. We had it in January and February.

Q. And that fuel was the fuel you were referring to in this remark in this letter? A. Yes, sir.

Q. And that fuel had a moisture content running from 5 to 27 per cent, had it?

A. No, I think the 27 per cent moisture was some of the fresh dried. But it ran from $8\frac{1}{2}$ to about 23.

Q. Now, you were right here along from December until weeks after the conclusion of this final test. Do you have in mind what the weather was at any of these times? A. Yes.

Q. Do you recall whether in February or late in February or early in March it rained?

A. I know it rained, but I have no record of the days. I didn't put them down. I did not make a note of it.

Q. You got some brick in January as low as 5 per cent moisture content, didn't you?

A. No, sir; not that low. I just read it.

Q. I beg your pardon, as low as 8 per cent.

A. Yes.

Q. Do you know where those bricks had been?

A. No, sir; I don't know. They were all piled up across the street.

Q. You did know that they were not made at that time?

(Testimony of E. C. White.)

A. They told me they had been sun-dried for some time.

Q. How many brick had they on hand at that time?

A. Creighton told me there was about 3,000 tons.

Q. Do you know what proportion of that lot had a moisture content of 8 per cent or less than 10 per cent? [544]

A. No, sir, I made no analysis of them. I couldn't tell you.

Q. But you knew of the analysis of those actually furnished you in January?

A. The chemist made an analysis and handed it to me.

Q. Is it not true that the brick that were furnished you during the final test came from this same stock of brick? A. Yes, sir; they came from the same stock.

Q. And the bricks that were furnished you and were used in the final test, were not the brick that were then recently made? They were part of this same large stock that you used?

A. I was under the impression that they did make some fresh bricks and take them over and kiln-dried them, but I am not positive of that.

Q. At any rate, is it true that the great majority of the brick that you used during the final test were from this same stock?

A. Oh, yes, the majority were, and I think they were all. But it seems to me—I was thinking of it that I did see them haul over some fresh bricks and kiln-dry them, but I won't be certain.

Q. Do you know how it happened that in January

(Testimony of E. C. White.)

some of the brick which were reported to you as only sun-dried had a moisture content as low as 8 per cent, and that during the final test in March brick furnished from the same stock had to be kiln-dried in order to come below 10 per cent moisture? In other words, do you know what the necessity was of kiln-drying the bricks out of the stock of bricks that in January had 8 per cent moisture or less?

A. I understood that the bricks that were in the outside were drier than the ones on the inside.

Q. Do you know whether all the brick furnished during the [545] final test were kiln-dried or not?

A. Yes, sir, I think every brick we had was kiln-dried.

Q. But you don't know how it happened that it was necessary in order to get them down below ten per cent?

A. Only from what Mr. Luckenbach said. He said "You fellows come here and say we don't give you a brick below 10 per cent." I asked him why they kiln-dried them and he said that was his reason.

Q. You haven't had any experience in comparing or handling or manufacturing brick made from lamp-black have you? A. No, sir.

Q. Then where did you get your knowledge of the condition of the carbon lamp-black—the by-product from the manufacture of gas from oil—before bricking, and the manner of bricking, so that it can be used for fuel, that you testified to in answer to some questions addressed to you by the Court?

A. I observed down at the gas-works how they did it.

(Testimony of E. C. White.)

Q. The gas-works of the Los Angeles Gas and Electric Corporation? A. Yes, sir.

Q. When?

A. Prior to the test and during all the time that I was there. I have been all around there with them and seen them make it.

Q. You saw them making those brick?

A. Yes, sir.

Q. In form like the brick you were using for gas making? A. Yes, sir.

Q. Did you see lamp-black in rough lump used for gas making—water-gas making?

A. No, sir, they're not making any gas that way.

Q. Did you ever see lamp-black—the by-product of [546] gas manufactured from oil—used in a crude unbricked form for water-gas making?

A. No, sir.

Q. But you have heard of it?

A. I have heard of it.

Q. Before you came here to Los Angeles to operate this set did you know anything about the negotiations or correspondence which had taken place between the gas company and your company on the subject of the lamp-black to be used in this set?

A. Yes, sir, I proceeded from New York where I had charge of the eastern business or eastern office, to Fort Wayne, and there I looked over the correspondence casually.

Q. Do you recall seeing this letter of March 11th, written to Mr. Luckenbach by Mr. Guldin of The

(Testimony of E. C. White.)

Western Gas Construction Company and marked Plaintiff's Exhibit 3?

A. No, sir, I don't remember seeing that.

Q. Do you know when you first learned that in the operation of these water-gas sets by the Los Angeles Gas and Electric Company that they used crude lumps of lamp-black without bricking at all, in their operation?

A. I heard that they used lumps of lamp-black, and that is all I knew about it.

Q. And you heard that before you came here?

A. Yes, sir.

Q. I think you stated that you did not ever see lamp-black used in that form in any water-gas set?

A. No, I had never seen it.

Q. Did you ever hear that that was the practice in San Francisco also?

A. No, sir, I never heard that recently.

Q. Not before you operated this set?

A. No, sir. [547]

Q. Now, you said in connection with this same matter that the carbon had to be bricked so that they could be used as fuel. Upon what do you base that statement? A. I said it had to be bricked.

Q. I understood you to so state.

A. I said it was probably the best form to use it, or being briqueted, which would make it hold together.

Q. Do you understand the difference between the meaning of the expression "briquetting" or "bricking," or do you use one as interchangeable with the other?

(Testimony of E. C. White.)

A. There seems to be a confusion about briqueting and bricking. They have got to calling the big square pieces bricks and the small ones about the size of this can briquets.

Q. Do you make any such distinction; when you say "briquets" do you mean what we call bricks?

A. Sometimes we call them briquets and sometimes bricks. We are very liable to confuse it.

Q. I am trying to find out what you mean, because you have used the word "briquets."

A. I meant the word "bricks," because I knew it would be more practicable to brick them than to briquet them.

Q. And you have been intending it all the time as the size and shape of a common building brick?

A. Yes, sir.

Q. Do you know in similar gas-works of their using lamp-black in the form of briquets, making the distinction between brick and briquets, a briquet being the smaller lump?

A. I have heard of their using briquets in San Francisco.

Q. Do you know that the briquet is harder and denser than the brick?

A. I would say that it is depending on the way it is treated. There are a great many styles of briquets as well as [548] bricks. Sun-dried and the length of time they have dried in the sun, and so forth.

Q. Have you subjected any of these bricks or samples of any of these bricks that were furnished to you during the final test or furnished to you during either

(Testimony of E. C. White.)

of the two experimental runs in January or February, 1910, to any accurate compression test so as to be able to state what differences if any there were in their strength or density? A. No, sir.

Q. I will ask you whether you have subjected any briquets to any such test to compare them with the brick in the matter of density and strength?

A. No, sir.

Q. Do you know of any such test having been made with these bricks or briquets? A. I do not.

Q. I show you, Mr. White, two bricks that were produced by Mr. Pederson while he was testifying, first, one that is wrapped in paper upon which are some endorsements. I will ask you whether you can identify that brick?

A. Yes, sir, that is the brick. That is my writing.

Q. The writing on the paper wrapping of this brick is yours? A. Yes, sir.

Q. State when and where you obtained that brick?

A. I obtained this brick from the gas company's yard on Central and Aliso Street, May 14th, 1910.

Q. Do you know when that brick was made?

A. I do not.

Q. Whereabouts did you get it with reference to the pile from which brick was furnished to you for use during the final test? [549]

A. I got it over in the yard. I cannot say where. The bricks were all kiln-dried. They were all practically the same.

Q. Do you know whether the gas company had been making brick during the months of March,

(Testimony of E. C. White.)

April and May, 1910?

A. They were making brick there off and on, yes, sir. I don't know how much of the time.

Q. For how long a time, if at all, after March 30th, was the gas company drying brick in its yard by means of fires or kilns?

A. I don't know that they were kiln-drying any after March 30th.

Q. And as to this particular brick that you have now inspected, you do not know when it was made?

A. I know it was part of the old batch that was sun-dried and then kiln-dried; because it was in the piles in the yard next to the old foreman's house, and they were the same old piles that were undisturbed. And they were kiln-dried. I paid particular attention to that.

Q. It was the same pile from which the brick was furnished to you for use during the final test?

A. Part of the piles. They were all over the yard.

Q. Was it from one of the same piles or lot from which brick were furnished to you for use and which you used during the experimental runs of January and February, 1910?

A. It was kiln-dried brick. It was the same lot, but in January and February the bricks were sun-dried before they kiln-dried them. This was a kiln-dried brick.

Q. Was it from the same lot of bricks?

A. The same lot, yes, sir.

Q. Well, then, if that is true, all of the brick in these piles or this lot were air-dried up till January

(Testimony of E. C. White.)

and [550] February, and the bricks that you used during the final test in the same lot were in addition kiln-dried?

A. As I stated yesterday, there may have been some fresh brick taken over and kiln-dried, and I wouldn't notice it. It appears to me they were hauling a few fresh brick over and kiln-drying them.

Q. But you state if there were such, you didn't know it, and the majority were not of that character?

A. The majority were not. They were of the old stock.

Q. And those were part of the same lot from which you got your brick in January and February?

A. I got my brick in January and February from the old piles that had been sun-dried and during some part of the test I used the fresh brick—

Q. Then, from this same lot of brick—and the reason you identify this particular brick that you have now before you is that you know it is from the same lot of old piles, and from the same place—that lot of brick had been air-dried or sun-dried? And that was their condition in January and February, was it not? A. Yes, sir.

Q. And then when you came to the final test, this same lot of brick were in addition kiln-dried?

A. Yes, sir.

Q. Was this brick you used in the final test sun-dried and later kiln-dried? A. Yes, sir.

Q. And as to this particular brick which you just now identified and which you say was kiln-dried, is it true that it was also previously sun-dried?

(Testimony of E. C. White.)

A. Yes, sir, it was of that pile—the old original pile. [551]

Q. Is it a fair representative sample of the bricks furnished you that you used during the final test?

A. I would say it is eighteen months since that brick was taken, and having been in the room, it seems to have been hardened to some extent. While it laid in the yard exposed to the air, it was more porous and more liable to break than it is now. It is similar to the brick in the can. The tin was soldered on. I didn't see the man when he soldered it. He kept the brick closed and that eventually drew it up stronger than it was.

Q. Confining ourselves to the one in the paper, do you say from your examination of it now that it is in better condition in regard to density and strength than it was at the time you took it or selected it?

A. Yes, sir. Age has hardened it to some extent.

Q. You are not able to say what the condition of that brick now is with respect to the moisture content?

A. Oh, no, I couldn't tell without analyzing it.

Q. Do you know or have you any opinion what it is that makes that brick harder now than when you selected it?

A. No, sir, I just have my opinion that its age, and the heat, being in a closed room.

Q. But when you say it is harder now than when you selected it, that is not because you are reasoning that it ought to be harder now, but your actual observation is that it is harder now than when it was selected?

(Testimony of E. C. White.)

A. Yes, sir, the bricks at the time when we were picking them up and examining them—they were extremely brittle and soft, having been subjected to kiln-drying, it was destructive to them.

Q. This was not subjected to kiln-drying?

A. It was. [552]

Q. And yet you say it is harder and firmer now than it was at the time you selected it?

A. It appears so; yes, sir.

Q. Now, referring to the brick that is in the can, when was that selected and whence was it obtained?

A. This brick was taken at the yards of the Los Angeles Gas and Electric Corporation May 27th, 1910.

Q. From the same piles or lot as the one in the paper? A. Yes, sir, it is a kiln-dried brick.

Q. And in what respect, if at all, did that brick differ from the one that is now in the paper, in condition, at the time you selected it?

A. About the same, I think.

Q. Now, that was May what, did you say?

A. May 27th.

Q. Can you state whether or not at the time that brick was selected the condition of the bricks in the piles had changed with reference to density or hardness since March 30th?

A. I didn't make any examination then to compare them between the time of the test and May 27th.

Q. Then, if you are not able to say whether or not the condition is different, how can you say they are a fair, representative sample from the brick furnished

(Testimony of E. C. White.)

to you during the test?

A. I said they were kiln-dried bricks. I did not test it as to tensile strength. And I am only judging from the observation and handling them.

Q. When you say they are representative samples, you do not mean to limit yourself to the statement that they are kiln-dried bricks and the others are kiln-dried bricks, but you mean, do you not, that these at the time you selected them [553] were bricks having the characteristics and general character in all respects of the bricks furnished you during the final test?

A. Yes, sir. I picked these bricks up, knowing that they were kiln-dried brick.

Q. Were the bricks that were furnished you during the final test harder or softer or different in any character from these bricks at the time you selected them?

A. They were softer. Especially when they were heated and hot. Then they were especially so.

Q. Then, the condition of the bricks from March 30th to May 27th when you selected these had improved, had it—the same brick?

A. I think that as time goes on they will harden.

Q. Did they harden between March 30th and May 27, bearing in mind that you saw them then and went and selected samples of bricks? Was there any difference in the character of the bricks that you selected as samples and the character of the bricks furnished you during the final test?

A. Yes, sir; they had had a chance to set and

(Testimony of E. C. White.)

naturally the sun and air would make them harden. Both these samples are considerably harder than they were at the time of the test—right at the time they were kiln-drying. They are brittle, however. They all go to pieces.

Q. Now, you spoke in your direct examination of the fact that just prior to the final test of this set you had installed a second blast line. I understood that you had not run the set until the time of the final test, with this additional blast line. Is that true?

A. Yes, sir.

Q. How did the blast furnished by this additional blast line compare with the blast that was in use at the time of the [554] experimental run in January and February, as to the quantity of air furnished and pressure of air furnished to the generator?

A. It practically doubled the supply of air.

Q. In quantity? A. Yes, sir.

Q. Was there any difference made as to pressure or velocity?

A. Yes, I asked that they give us a certain number of inches of pressure, so we could have it if we wanted it. And, of course, if it was too much we could close it off.

Q. Can you state what pressure in inches you actually used during the final test?

A. Yes, I think about twenty inches.

Q. And in the experimental test of January and February what pressure did you use in the single blast line?

(Testimony of E. C. White.)

A. From thirteen to sixteen inches, I think.

Q. So that the difference between the operation during the experimental run and the final test run was that in the former you had from thirteen to sixteen inches pressure with one line, and in the final test you had twenty inches of pressure and double the amount of air?

A. Yes, sir, practically double. One line was a twenty-four inch line and the other was a twenty-two inch line.

Q. Did this set at any time in the experimental run or at any time whatever do any better than it did on the 10th of March?

A. Up to the time of the final test we didn't have in the secondary air line. I considered those performances were unsatisfactory. They were to us. For that reason, we put in this new line. That gave us the efficiency obtained the first day. [555]

Q. What is your answer to my question whether the set ever did any better than it did on March 10th?

A. No, sir.

Q. That was the maximum performance of the set at any time?

A. Yes, sir, after that we had trouble with the dirty carbureter.

Q. Do you know how much oil per thousand cubic feet of gas produced by this set was consumed from day to day? A. Yes, sir.

Q. Have you some report on that which you can refer to?

A. Do you mean from the 10th of March?

(Testimony of E. C. White.)

Q. Yes, sir. A. Yes, sir, I have got it.

Q. Will you please state, beginning on March 10th?

A. March 10th, 3.47 gallons.

Q. Gallons of oil per thousand cubic feet of gas produced? A. Yes, sir.

Q. March 11th?

A. 4.15; March 12th I have 4.2, and I am not sure whether it is 4 or 4.02.

Q. Our records indicate that it is 4.20.

A. 4.2 then. March 13th, 4.45; March 14th, I haven't got—I think it is so indistinct that it doesn't show.

Q. Would a suggestion aid in reading those figures? A. Yes, sir.

Q. May it be 5.49?

A. I see it now, it is 5.5. The 16th is 5.42; the 17th is 3.91; the 18th is 4.49; the 19th—4.32; 20th, 4.29; the 21st, 4.25; 22d, 4.47; 23d, 4.71; 24th, 4.44; 25th, 4.30; 26th, 4.69; 27th, 4.75; 28th, 5.13; 29th, 4.74.
[556]

Q. (By Mr. GOUDGE.) Please state what the average candle-power of the gas produced by this set was on each day of the final test?

A. On March 10th, 17.09; March 11th, 18.5;—

Q. Pardon me a moment. That first candle-power was that 17.9 or 17.09?

A. On March 12th, 19.3; March 13th, 19; March 14th, 19.2; March 17th, 17.9—

Q. What about the 16th?

A. I didn't take it on the 16th. On the 18th, 19.3; 19th, 18.9; 20th, 18.9; 21st, 19.3; 22d, 19.5; 23d, 19.9;

(Testimony of E. C. White.)

24th, 19.7; 25th, 18.4; 26th, 19.2; 27th, 20.2; 28th, 19.6; 29th, 19. Making an average of 19.5.

Q. Did you observe during this final test, Mr. White, that sometimes the candle-power of the gas produced would be greater than other times for the same consumption of oil? A. Oh, it varied.

Q. That is, with the same consumption of oil per thousand feet of gas produced, the candle-power would vary?

A. It would vary. Because the amount of hydrogen in the generator would probably not be the same.

Q. So that the candle-power did not always vary directly with the quality of oil used?

A. I think it was effected more readily with the amount of hydrogen being made, and we endeavored to stick to the number of gallons of oil and not switch. That is, take a hundred gallons and stick to that.

Q. A hundred gallons for a certain period?

A. Yes, sir, and go right along with it.

Q. Now, you spoke of the condition of the set when the final test terminated, and you described certain defects or conditions of unrepair that existed at that time. I will ask you whether in addition to the things which you mentioned [557] which were the checker brick in the superheater, the bulging of the top of the generator, the raising of the cast-iron floor, and the leak of gas between the carbureter and the superheater, whether there was not a large valve that had been temporarily repaired with cement?

A. No, sir, there was no valve that had been temporarily repaired with cement.

(Testimony of E. C. White.)

Q. Was there not a valve temporarily installed different from the one which should be there permanently or intended to be there permanently?

A. Yes, sir.

Q. What was that?

A. It was a 20-inch Ludlow valve from the gas company.

Q. One that was borrowed?

A. Yes, sir. We could send one from Fort Wayne, but the express is so great, and they wanted to know if I couldn't borrow one here.

Q. And your valve had not been installed at the end of the run? A. No, sir.

Q. Has it since been furnished at any time to the set? A. Certainly not.

Q. And these repairs that were necessary to put the set again in good condition, were they ever made?

A. They were not. [558]

Redirect Examination.

(By Mr. CHAPMAN.)

Q. I believe you have already testified that you offered to Mr. Luckenbach to put the set in condition if they would allow another test or demonstration and to accept it?

A. Yes, sir, I talked to him on the 30th of March, the day of the completion of the run, and I asked him permission to put the set in order to make a demonstration run.

Q. And did that include the restoration of that valve that has just been referred to?

A. We intended to put in one of our quick-acting

(Testimony of E. C. White.)

and opening standard valves, certainly.

Q. Did you offer to do so? A. We did.

Q. Were you willing to do so? A. Yes, sir.

Q. Can you state from your observation of the bricks that were furnished, whether they showed any defect in the dies by the failure to fill up the dies fully?

A. Yes, sir, they do show a defect, and they are not filled up. They afterwards, while I was there, put in new dies and the bricks were materially different in being filled out and square.

Q. Do you know whether they made any change in the dies during the test or shortly after?

A. Not shortly after. It was either shortly before the test or during the test that they put in new dies and called my attention to it and showed me the dies and showed me how nice the bricks were. [559]

Q. And are these brick samples here labeled—

A. No, the other.

Q. Two bricks, samples from the Los Angeles Gas and Electric Company's yard, between March 10th and March 30th, were they selected, and are well filled out. Most of the bricks have their ends knocked off, caused by the dies being worn, holes not being properly filled. Is the brick in that package brick that came from the new dies?

A. Yes. I took them just as they were being made. I took them up and had tin put around them.

Q. In the course of your cross-examination you stated that in your preliminary operations the moisture content was reported to you by some chemist.

(Testimony of E. C. White.)

Do you mean some chemist employed by you or the gas company chemist?

A. The gas company chemist.

Q. In all of these records or weights, candle-power, or oil consumption, that you received and noted upon these cards and which you testified you accepted, did you accept them upon the assumption that they were correct? Did you know anything about their correctness other than what they told you?

A. No, sir. I took their figures.

Q. And you accepted them in that sense that they said they were correct and you made no question of it but put them down accordingly. In the course of the cross-examination Mr. Goudge asked you if the poor condition of the carbureter—the clogged condition of the carbureter—could not have been brought about by an over-feed of the supply of oil into the carbureter, and you did say it would have been possible, and it was possible to overload the machine or carbureter with oil. I will ask you whether if that was the case the condition would evidence itself in some manner so that you could tell it?

A. Oh, yes, you could tell it in a moment by looking at [560] the overflow of the seal-pit, which is exposed to the gasmaker. If you put too much oil in the carbureter it will manifest itself immediately by being picked up and carried right along and put into the seal-pit.

Q. Do you remember the condition in this test?

A. No, sir, we could always put in more oil.

(Testimony of E. C. White.)

Recross-examination.

(By Mr. GOUDGE.)

Q. When you say you offered to repair the set and replace the valve that you should have furnished, that was on condition that you should be allowed a demonstration run or another run, was it not?

A. We would have put it on anyway if Mr. Luckenbach had said so, but he got up about it and wanted his money back and so on, and that is all there was to it.

Q. But you did say you would repair the set if they gave you another run?

A. Certainly; we would put it in proper condition, which only required a few minor changes.

Q. And when you offered to put it in condition you said you would do so if they let you have another run or demonstration?

A. Yes, sir. Outside of the checker brick it would not have cost \$200 to put it in first class condition.

Q. Now, as to the dies in the brick-making machine, do you know how long the dies are used in lamp-black brick-making machines?

A. No, sir, I do not. [561]

[**Testimony of E. A. MacGillivray, for Defendant.**]

E. A. MacGILLIVRAY, a witness on behalf of the defendant, being first duly sworn, testified as follows:

Direct Examination.

(By Mr. TRIPPET.)

Q. What is your name? A. E. A. MacGillivray.

Q. What is your business?

(Testimony of E. A. MacGillivray.)

A. Building and selling gas machinery.

Q. How long have you been in that business?

A. About ten years.

Q. Where do you live? A. Los Angeles.

Q. How long have you lived there?

A. About seven years.

Q. Did you go with Mr. White to the gas plant and inspect some machinery that he had charge of?

A. I did.

Q. When was that, approximately?

A. That was a year ago last spring. About April 20th, 1910.

Q. Did you also see the carbon at that time?

A. Yes, sir, we looked about in the chute and looked at the carbon.

Q. Did you go up to the chute and bin above the chute that carried it in? A. Yes, sir.

Q. Any carbon in there? A. Yes, sir.

Q. What condition was it in as to its shape?

A. It was all broken up. [562]

Q. How fine was it broken up? Can you give us an estimate of that?

A. Well, there was a lot of dust—powder—besides a lot of pieces. Of course, it was not all powdered, but I should think—well, there wasn't any whole ones there at all, that I could see. They were all broken, more or less.

Q. Did you go out in the yard to view the carbon there? A. Yes, sir.

Q. Where is this yard that you went in?

(Testimony of E. A. MacGillivray.)

A. It was across the street from where the machine set.

Q. Did you see any kilns for drying where the bricks were made into kilns?

A. I wouldn't call them kilns. They were just stacked up on the ground. You might call them kilns.

Q. Was there any evidence of any fire having been around them or about them?

A. Yes, sir, I think there had been.

Q. What condition did you find those brick in? Did you examine them?

A. Yes, I examined them pretty thoroughly. They were all disintegrated more or less. I noticed where the wagons ran against some of them and they were all broken up. I took some and threw them down on the ground and they would break.

Q. Could you break them with your hand?

A. Oh, yes.

Q. They were easily broken, were they?

A. Yes, a great many of them were all ready to fall to pieces, it looked to me like.

Q. Did you examine the floor to the apparatus around the generator? A. Up on top?

Q. Yes. [563]

A. Yes, sir, I walked all over that.

Q. What condition was it in?

A. I didn't see anything the matter with it. I didn't see anything wrong with it. It probably was

(Testimony of E. A. MacGillivray.)

not perfectly level, but there isn't any of them that are perfectly level after they are used and heated up.

Cross-examination.

(By Mr. GOUDGE.)

Q. Did you ever see a water-gas set in operation using lamp-black? A. No, sir.

Q. You speak of these bricks in the yard that were stacked up. Where else, if anywhere, did you ever see any brick made of lamp-black?

A. I never saw any only in Los Angeles.

Q. Did you ever see any in Los Angeles prior to the time that you saw these? A. Yes, sir.

Q. Where?

A. I have seen them at the Los Angeles plant and where they have sold them around in different places.

Q. I call your attention to this brick resting on the paper, being one of the brick identified by Mr. White in his testimony, and ask you if you ever have seen such bricks as this sold in Los Angeles?

A. No, I don't know that I have. I think they were smaller I didn't pay much attention to tell you the truth.

Q. Before the time when you examined this brick, some time in April, 1910, when you went to the plant with Mr. White, had you ever made any critical examination of the brick made of lamp-black?

A. No, sir, I had not [564]

Q. I call your attention to this brick that I referred to just now that is wrapped in paper and identified by Mr. White, and I ask you if that is the sample or representative specimen of brick that you

(Testimony of E. A. MacGillivray.)

saw at the time you were at the plant with Mr. White? A. Yes, that looks very much like it.

Q. That was the kind of brick that you saw there?

A. Yes, sir.

[Testimony of A. A. Caldwell, for Defendant.]

A. A. CALDWELL, called on behalf of the defendant, being first duly sworn, testified as follows:

Direct Examination.

(By Mr. TRIPPET.)

Q. What is your name? A. A. A. Caldwell.

Q. What business are you in?

A. I am in the gas business, more particularly in the investment portion of it.

Q. Where do you live?

A. Here in Los Angeles.

Q. Did you go to the machine with Mr. White at the gas-plant? A. Yes, sir.

Q. Did you examine the carbon at that machine?

A. I did.

Q. Where was the carbon that you examined?

A. In the chutes above the machine, and also in the yard.

Q. What was the condition of the carbon in the chutes above the machine?

A. It was all broken up. Some *of was* dust and some was small pieces.

Q. Any whole brick? [565]

A. I don't remember seeing any. I think there were some half bricks. The larger portion was in small pieces.

(Testimony of A. A. Caldwell.)

Q. Did you go anywhere else to examine the carbon?

A. We went out into the yard where there was a large amount piled up.

Q. Where was this?

A. It was on the west side of the plant, I guess it was. It is a large yard filled with brick.

Q. Did Mr. White point out some brick to you to examine? A. Yes, sir.

Q. What condition did you find the bricks in?

A. They were very shaky. So much so that if you struck a portion of one with your foot it would simply go to powder. If you dropped it or threw it down on the ground it would not hold together at all.

Q. How many of them did you examine?

A. We walked around the yard in various places.

Q. Did you handle these bricks?

A. We handled quite a number of them.

Q. Broke them with your hand?

A. You could take them like that and they would go to powder. If you would throw them from this desk down to the floor they would go to pieces.

Q. Would all of them go to pieces?

A. I wouldn't say they would go all to pieces. Some would break up in chunks.

Q. Were you with Mr. MacGillivray and Mr. White?

A. I went down with Mr. White and Mr. MacGillivray, I think it was in the month of April. It was before I went away on my summer vacation. I think

(Testimony of A. A. Caldwell.)

it was about sixty days before that. I went away in the month of June. [566]

Cross-examination.

(By Mr. GOUDGE.)

Q. Did you ever operate a gas-plant?

A. No, sir.

Q. Ever build one?

A. I have been interested. I never have done the actual mechanical work.

Q. Have you ever seen outside of the Los Angeles Gas and Electric Company's plant, a water set in operation that used lamp-black?

A. No, sir. I never had any experience with it.

Q. Did you ever see bricks made of lamp-black except the ones that you saw or have seen at the Los Angeles Gas and Electric Corporation's plant?

A. Never outside of those, those that I have seen used for household purposes in Los Angeles.

Q. And the latter that you have seen sold for household purpose, are not in the form of those building bricks?

A. I think not. I purchased some for my own house and I don't recall the shape they are in. I mean I thought they were first, but since you asked the question I don't think they were.

Q. You recall that they are small cylinders with rounded ends? A. Yes, sir that is a fact.

Q. Have you ever seen these brick, distinguishing bricks from briquets—a brick about the size and shape of a building brick—before you went down to the plant in April?

(Testimony of A. A. Caldwell.)

A. I have seen the brick before I think at the Los Angeles gas plant, if I remember correctly. [567]

Q. You did not see this water-set that Mr. White was interested in, in operation, did you?

A. No, sir, I did not.

Q. Did you ever see any of these brick made or manufactured? A. No, sir, I did not.

Q. You were there examining these bricks the same time Mr. MacGillivray was?

A. Yes, sir, with Mr. White and Mr. MacGillivray.

Redirect Examination.

(By Mr. TRIPPET.)

Q. I wish you would examine that brick lying on the desk on the paper. Is that the kind of brick you examined down there in the yard?

A. I think as far as the shape is concerned, it is the same, yes, sir.

Q. How about—

A. It seems a bit shinier to me than those down in the yard. I don't know whether it is more—it is the same shape brick, but it seems shinier. Some of them were more shattered than this. I don't think the brick down there were as good as this brick. It is pretty hard to tell. I don't know as a matter of fact whether they were or not. This brick has got cracks along it, and those had cracks in too. [568]

[Testimony of O. N. Guldin, for Defendant.]

O. N. GULDIN, a witness called on behalf of the defendant, being first duly sworn, testified as follows:

Direct Examination.

(By Mr. CHAPMAN.)

Q. Where do you reside?

A. Fort Wayne, Indiana.

Q. What is your business?

A. Gas engineer, President of the Western Gas Construction Company.

Q. How long have you been connected with the Western Gas Construction Company?

A. Since its organization in 1890.

Q. You have been continually its president?

A. Yes, sir.

Q. In what does that company deal, principally?

A. Gas-works apparatus.

Q. During that entire period have you or your company been constructing gas apparatus?

A. Yes, sir.

Q. Have you made any study of the art of gas manufacture? A. Yes, sir.

Q. What has been the extent of your education in that regard?

A. During that time or previous to that time?

Q. Well, during your life?

A. I graduated as a mechanical engineer in Norway in 1879. Subsequently, I took an advance course in Munich, Bavaria, in mechanical engineering. Then I arrived here in 1880 and was for two

(Testimony of O. N. Guldin.)

years and a half with the Baldwin Locomotive Works in their engineering department. In the [569] fall of 1882, I went into the gas engineering and have remained there in that branch or business ever since.

Q. Have you made any special study of the apparatus by means of which gas is manufactured in its various forms? A. Yes, sir.

Q. Have you continuously since that time devoted yourself to the manufacture and designing of such apparatus? A. I have, ever since 1882.

Q. What information did you have on which to base a guarantee in this contract?

A. The information came directly from the gas company in a communication by Mr. Luckenbach dated March 5th, in a letter which I notice is in evidence.

Q. Did you have any other information about the conditions under which it was to be operated—the character of fuel?

A. An additional letter was received from Mr. Luckenbach in reply to one from me after receiving his of March 5th, in which I had at that time been advised by him that they were using lamp-black in some oil style Springer apparatus that they had, and I asked to what depth they were able to carry it, using it in such crude form, and some other general questions which would enable me to form an idea as to the quality of the fuel as adapted to water-gas manufacture.

Q. You refer to the correspondence that is on file?

(Testimony of O. N. Guldin.)

A. Yes, sir.

Q. Did you have any samples sent you? [570]

A. Yes, sir, there were samples of the fuel sent us.

Q. In what form were they? A. In briquets.

Q. Did you have any analysis made of them?

A. Yes, sir, I had analysis made of them by our chemical department, and made a rough personal examination of it.

Q. What was the moisture content—what was the percentage of moisture?

A. It was from three to four per cent, to the best of my recollection.

Q. What was their appearance and what was their physical condition, with reference to strength?

A. Very hard and very satisfactory to me.

Q. Besides the correspondence that you had and the samples that were submitted to you, did you have any other information about the condition of the plant here under which the machines were to operate?

A. Only the usual information that satisfactory oil pressure, steam and blast would be taken care of by the gas company.

Q. Where did you get that information? From whom?

A. From whom—that was specified in the specifications that we forwarded here.

Q. Did Mr. Pederson furnish you any other information than what you got through the correspondence and through the samples? A. No.

Q. Now, I call your attention to this part of the

(Testimony of O. N. Guldin.)

carbureter which you have designated as designed to collect such dust or ash as might pass over. Is that apparatus or that feature of the machine peculiar to this style—to your make? [571]

A. It is one of my patented features.

Q. That was something that was designed and patented by you? A. Yes, sir.

Q. What was the purpose of it?

A. The purpose is to prevent ashes, which, of course, all fuel contains, by the blast to be carried over and deposited in the carbureter and thereby enables the apparatus to run a considerable longer time than otherwise could be run without stopping or clearing or replacement of the checker-brick.

Q. Isn't there any machine operated for the manufacture of water-gas that has not incident to it the flying of more or less dust and ash from the generator to the carbureter?

A. No. There will be more or less in any apparatus of that kind using any fuel that contains ash.

Q. And this particular chamber has been designed and patented by you to take care of that condition?

A. Yes, sir. And a door is provided at the bottom for the convenient removal. It might be proper, however, to state that we had previous to that designed a similar idea for the construction of the connection between the generator and the carbureter, in which there was a ball-valve, having a dust chamber, and by the turning of the flow of the gases as they left the generator and entered the carbureter, the dust was precipitated in that chamber. That was our old

(Testimony of O. N. Guldin.)

design on which I also had the patent, but subsequently we brought out this machine where the matter was further taken care of.

Q. Now, besides that feature that was constructed in this machine, what other measures in the carbureter could have been taken to collect the material flying over there?

A. There are no devices for that in the market. And I [572] don't know that there ever was until this was invented.

Q. Is there any apparatus that could have been added there to the carbureter to have taken care of more dust than this one does in that regard?

A. No.

Q. Is it incident to all operation of oil-gas apparatus where oil is used that there is more or less deposit in the carbureter?

A. Yes, sir, and that depends on the quality of the fuel used.

Q. What is done in the operation of the machine to relieve that condition?

A. The carbureter is put under what we term burning out periods which also apply to the superheater. Such periods are for the purpose of removing by combustion any coating which may have accumulated on the brick from the residuums of the oil used in gas manufacture.

Q. And is that a necessity in the operation of oil machines? A. Absolutely, yes.

Q. At what intervals?

A. That would depend on the quality of the oil

(Testimony of O. N. Guldin.)

and it also depends largely upon how the machine is used. It is not customary in the operation of water-gas apparatus to keep a machine continuously on twenty-four hours run. What I mean by that is this: That there are intervals in twenty-four hours where the machines could be cleaned. It may go one day, and the next day the gas making is off, and they turn the machine on for cleaning, as we term it. That can be done by natural draft by opening the top and drawing the air through, or, if the machine has to be cleaned in a hurry, to apply direct forced blast.

[573]

Q. When this generator was reconstructed after the second contract was made, the grate area was enlarged and the generator itself was considerably enlarged. Was the enlargement of the grate area and the construction of the partition wall between them done with any view to take care of the dust?

A. Decidedly so.

Q. Explain how that would come about?

A. The construction of the generator depends on its grate area. In other words, you can pass air slower through a large grate area than you can through a narrow one. In modern gas-making, that is, in the construction of water-gas apparatus, we are constantly aiming at forcing the machine up to the limit for every square foot of grate area we have, as a matter of economy in construction. In these contracts when they came to us there was a specific provision that provision should be made to prevent ashes and dust to be carried over excessively to the car-

(Testimony of O. N. Guldin.)

bureter. There was only one way of doing that, as there is no mechanical means by which you can do it, and that was to reduce the flow of the blast to the fuel bed to enable you to lower the height of the fuel bed and create perfect combustion without an excessive rush of air as in ordinary machines. In other words, to reduce the velocity.

Q. In order that you may operate with a reduced velocity or pressure of air blast, what is necessary with respect to the condition of the fuel?

A. It must be open, and it must have a larger grate area. [574]

Q. If the fuel had a tendency to and did pulverize or powder, and thereby close up the interstices of the fuel, what would that necessitate with respect to the air blast?

A. If it proceeds far enough, it gradually builds up the pressure under the grate as the air is admitted, and it would force the air through ports or holes or comparatively open spaces in the fuel bed, and consequently by the increased pressure that had been built up under the grate bars which could only find an outlet through such fuel openings, as you may call them, and it would create a current that would necessarily carry the dust.

Q. What effect would it have on the velocity with which the air passed through there?

A. Materially increase the velocity, but materially also, decrease the volume of air passing to the fuel beds. Let me give you an illustration. If you have a vessel and you want to fill it, and you have a two-

(Testimony of O. N. Guldin.)

inch pipe and a six-inch pipe, you can do it slower with the six-inch pipe.

Q. In order to keep the fire in the generator open as you describe it, what is necessary with respect to the form of the fuel that is fed into it?

A. The fuel must be of such form as to maintain open spaces between the individual particles. At the same time, it should not be too great, because otherwise—if, for instance you have large chunks like this, the surface attacked by the air would necessitate an enormously high fuel bed in order to fire the fuels that you receive for the carbureter and the super-heater.

Q. After this test was closed and the machine shut down were you advised of certain damaged parts and defects in the machine resulting from the test by your operators?

A. Yes, sir; I was advised by the regular operating reports that there were defects that had developed.
[575]

Q. When you learned that there had been some defects appeared in the machine as the result of the operation, what did you do in that regard, if anything?

A. I instructed our representative to advise the gas company that they will be taken care of, as there were none of any material importance, nothing more than could be expected.

Q. Assuming that you have a carbureter of sufficient capacity, is it practicable to regulate the candle-power and raise it and lower it?

(Testimony of O. N. Guldin.)

A. Oh, yes, entirely.

Q. Describe in what manner it may be done.

A. Either by reducing or increasing the amount of oil injected, or increasing or decreasing the amount of steam. There are two ways. Usually it is made by directly admitting more or less oil into the carbureter, it being assumed that your generator fuel has been in a condition to produce the necessary producer-gas for the heating of the carbureter and super-heater, but I am speaking of normal conditions.

Q. Upon what does the capacity of the carbureter depend?

A. On its cubic content. The rule for that is rather arbitrary. Each company has its rule. We have our rules which our engineering department determines. It, of course, also depends on the temperature. Did you mean construction or manipulation?

Q. Manipulation.

A. That depends on the temperature of the cubic contents of the brick work as well as the surface of the arches and everything else that are exposed to the action of the oil.

Q. With your knowledge of the subject of water-gas making, assuming that this generator as it was constructed here, had a capacity for producing between two and three million feet of gas for 24 hours, what would you say about the sufficiency of [576] the capacity of that carbureter to handle sufficient oil to make a 20 candle-power gas or maintain a 20 candle-power gas?

(Testimony of O. N. Guldin.)

A. Carbureter only or carbureter and superheater?

Q. Both.

A. There is no question whatever but what they should.

Q. With your knowledge of the production of gas from various kinds of apparatus and different sizes of apparatus and your experience generally, what would you say about the capacity of the generator in this set, using lamp-black bricks of less than 10 per cent moisture, and of a substantial character as to strength, to produce between two and three million feet of gas every 24 hours?

A. With satisfactory air supply and steam supply I should say the capacity of three million feet would be a nominal one for the size of generator.

Q. In my question with respect to the capacity of the carbureter to have maintained 20 candle-power gas, I omitted to restrict the conditions to the use of not more than four and a half gallons of oil per thousand feet of gas. With that amendment to the question what would you say about the capacity of that part of the apparatus to maintain 20 candle-power gas.

A. It would be easier to maintain a capacity with lower candle-power than if the candle-power was required high. In other words, the capacity of the water-gas apparatus as we figure it is based on higher candle-power than that. Or, in other words, it is built to gasify oils in excess of the requirement of four and a half gallons of oil per thousand.

Q. In the operation of water-gas sets using gas-

(Testimony of O. N. Guldin.)

house coke or coal, does there result any ash, or rather, any deposit of any portion of the fuel through the grate bars into the ash pit?

A. It does when you clean the fire. [577]

Q. What is done with that material?

A. That is taken out—sifted from what is worthless ashes—and the coke or coal is brought up to the generator floor and recharged to the machine.

Q. By the use of lamp-black, do you know whether any similar result would take place as to deposits in the ash pit?

A. If lamp-black should crumble and go into dust there naturally would be in the cleaning considerable deposits under the grate bars.

Q. Do you know whether that material would be capable of being rebricked and be reused for fuel purposes?

A. If it was separated from the ashes, yes.

Q. Could it be separated from the ashes?

A. I am not prepared to answer that, but it could be used as carbon for boiler fuel and other places where that would not cut any figure.

Cross-examination.

(By Mr. GOUDGE.)

Q. Since that time when you speak of the original design for this type of apparatus being successfully operated it has been successfully operated with anthracite coal and with coke?

A. Yes, gas-coke as well as furnace-coke.

Q. In what way or by what dimensions is the size of a water-gas set described?

(Testimony of O. N. Guldin.)

A. By the diameter of the shells.

Q. And by the diameter of any particular shell?

Which shell? [578]

A. Generally by the generator. And if one shell is different sizes—if it has two different dimensions—in which case we specify both diameters.

Q. So that a set can be described ordinarily as a ten-foot set or an eight-foot set, referring to the diameter generally of the generator?

A. And the carbureter, where you have different sizes.

Q. What is the size of the largest set made by your company and put into successful operation before the building of this set?

A. An 11-foot diameter. [579]

Q. That refers to the diameter of the generator?

A. Generator and carbureter.

Q. The diameter of the generator in this set as first built was how much? A. 13 feet.

Q. Do you know of any other set in this country with a generator as large as that? A. No, sir.

Q. Now, prior to the building of this set by your company, you never have built any set designed for the use of lamp-black for fuel? A. No, sir.

Q. I call your attention to a letter of December 16, Mr. Guldlin, marked Plaintiff's Exhibit 6. Do you recall writing that letter or causing it to be written?

A. No, that was written by my chief engineer. [580]

Q. Did you know of it?

A. Yes, I knew of it generally.

(Testimony of O. N. Guldin.)

Q. I call your attention particularly to this sentence on the last page of the letter: "The use of lamp-black as a fuel for water-gas machines was and is an absolutely new experience to us." That was a correct statement at that time?

A. That was a correct statement at that time. What date was that?

Q. December 16, 1907.

A. Well, I won't say that it was a new experience at that time, but that was after the plant was put in operation. Wasn't there a complaint there about the enormous amount of moisture in the brick furnished for the temporary operation? I presume that is the reason he refers to it, because he wanted to be polite.

Q. I will read the whole paragraph and ask you to say whether this was a mere polite phrase or whether it represented a fact: "It is not our intention or desire to take advantage of any wording of the contract or any technical points to evade responsibility for the operation and results of this machine, but in simple justice to ourselves, we must insist that the conditions of the terms of the contract shall be met by you as well as by ourselves. The use of lamp-black as a fuel for water-gas machines was and is an absolutely new experience to us."

A. Yes, sir, but that was referring to a previous statement as to the quality of the fuel furnished by your company that caused this letter to be written. I don't remember, but I think that must be it. Does it not refer to some complaint about fuel or something?

(Testimony of O. N. Guldin.)

Q. Yes, he is complaining of the fuel. That is, the form in which the fuel is furnished. [581]

A. And about the moisture?

Q. Yes.

A. What does he say about the moisture?

Q. He says: "It was specifically stated that our guarantees were placed upon 'dry lamp-black' or lamp-black containing not more than 10 per cent moisture. Lamp-black briquets furnished us at the time of this contract for our inspection were analysed and were found to contain an average of less than 3 per cent of moisture. Instead of the fuel which we had every reason to believe would be supplied and which was specifically mentioned in the terms of our contract, we find that the fuel from which we are expecting to make our guarantees good contains 35 per cent to more than 40 per cent by weight of moisture."

A. That was an entirely new experience. We had never attempted any fuel with 30 or 40 per cent moisture in a water-gas apparatus. That would be an impossibility.

Q. Had you ever attempted the operation of a water-gas set with the use of lamp-black of any kind prior to the operation of this first machine?

A. No, sir. I beg your pardon. If I had ever done it myself, or if I had seen? I want to get that answer straight, because I had seen it.

(The question is read by the reporter.)

A. No.

Q. (The COURT.) That letter is December, 1907.

(Testimony of O. N. Guldin.)

A. (Mr. GOUDGE.) Yes, sir, December 16, 1907.

Q. You referred in your direct testimony to a letter dated March 5th, addressed to your company by Mr. Luckenbach which you say contained the information that you had with reference to the fuel, that this set was to be designed to use. I show you this letter which is marked Exhibit 2, and ask you if that is a copy of the letter that you refer to? [582]

A. As far as I am able to say, that is a correct copy.

Q. Now, at that time, that is, at the date of this letter, you recall that Mr. Pederson was here in Los Angeles?

A. Previous to that time, I judge, for the reason that the date of our first specifications sent here was February 5th, I think, and he must have been here to present those, as well as drawings.

Q. And did you not have some report from Mr. Pederson in regard to the requirements of the gas company?

A. Yes, there was some general conversation as to the size of the apparatus, and that the matter was up for negotiation.

Q. And also some information from Mr. Pederson communicated to you concerning the fuel that they were going to use?

A. That was the same information as incorporated in Mr. Luckenbach's communication. That it would be lamp-black dried to 10 per cent, and then briqueted or bricked.

The COURT.—Is that information contained in

(Testimony of O. N. Guldin.)
any of the correspondence?

Mr. GOUDGE.—This letter that I have asked the witness to identify and he has identified. In order that there may be no misunderstanding, I will read the letter. (Reads letter.)

A. That is the letter on which the guaranty was based.

Q. In answer to that letter of March 5, 1907, you wrote this letter of March 11, 1907, marked Plaintiff's Exhibit 3?

A. Yes, that expresses the answer. That letter was written after we had received the information.

Q. And was written in reply to the letter of the 5th, and it was also written after you had heard from Mr. Pederson?

A. That I could not state, unless it says so. Does it say that we heard from Mr. Pederson? We undoubtedly had the same information that we had from Mr. Luckenbach, that that is [583] the way they were going to prepare the fuel.

Q. I notice this one paragraph says, "We have not as yet received from our Mr. Pederson information on the subject of your special fuel and we have wired him today for same."

A. Yes, it might be that way.

Q. In this letter you say, "We are rather surprised, however, to note your statement that you can take this lamp-black in large lumps from a sun-dried pile and use the same in generator, as writer would hardly believe the *fuel be* compact enough to retain its shape in a deep fuel bed by having merely been

(Testimony of O. N. Guldin.)

sun-dried. Will you kindly advise us what depth of fuel bed you have been able to handle in your generator with the fuel in this condition?" And in answer to that you received, did you not, a letter from Mr. Luckenbach dated March 19, 1907, of which this Plaintiff's Exhibit 4 is a copy?

A. Yes, it is a reply to my letter in which I answered his previous letter, in which he stated the method of manufacture to be adopted as to lamp-black, and he repeated again in this letter asking the guarantee, by giving the number of pounds of carbon from oil-gas manufacture, containing 5 per cent moisture.

Q. And in this letter also he gave you the depth of the fuel bed they were using or able to use with this lump lamp-black?

A. Yes, it is the raw material in a sun-dried form.

Q. And it was upon that suggestion that you made your design and subsequent guaranty?

A. Yes, sir.

Q. You have stated that you had not prior to this time built any set for the use of lamp-black as fuel. Had you prior to that time built any set as large as this set?

A. No, the largest set we have built is either 11 foot [584] or 11 foot, 6, for coke. That is as far as I know the largest size we have ever built of that type of apparatus.

Q. (By the COURT.) And this is 13 feet?

A. 13 feet in the generator, 12 foot 6 in the carbureter and 12 feet in the superheater.

(Testimony of O. N. Guldin.)

Q. (By Mr. GOUDGE.) This particular one in the generator is 13 feet one way and how much the other? A. Twenty feet.

Q. And the largest previous to that was 11 feet in circular form?

A. That was outside dimensions you understand.

Q. In both cases outside?

A. Because the lining comes off.

Q. In both cases you refer to outside dimensions?

A. Yes.

Q. Subsequent to the construction of this set have you built any other set for the use of lamp-black as fuel? A. No.

Q. Now, you speak of this chamber in the carbureter for the collection of dust being a patented feature and one designed by yourself or by your company.

A. Did you say the checker-brick?

Q. The chamber. A. Yes, sir.

Q. That was not designed for lamp-black as fuel, but any fuel designed for gas-making?

A. It was designed before lamp-black was ever thought of.

Q. And it is a necessary evil in the manufacture of water-gas from any fuel that some dust or fine material is liable to be carried over into the carbureter? A. Any fuel that has ashes.

Q. And all fuel that you use has some ashes, hasn't it? [585] A. Yes, sir.

Q. Do you recall that the report of the operation of this set as first designed and installed indicated

(Testimony of O. N. Guldin.)

that the means for collecting and removing the dust carried over from the generator into the carbureter were not quite adequate? A. I do not.

Q. Then, how did it happen that in the supplemental contract among the changes that you said you desired to make was the provision for more ample means for collection and removal of the fine materials carried from the generator to the carbureter?

A. That is a clause in the contract prepared here—as the contract was prepared here—as it was received by us.

Q. I will read you the language: “Provide ample means for the collection and easy removal of dust and fine carbon carried from the generator to the carbureter.” Was it not reported to you by some representative of your company here that the means theretofore existing were not entirely ample or sufficient?

A. It was reported that in the handling of fuel as provided by your method of hoisting and so forth that the fuel had more dust than anthracite coal or coke, and that it was deemed advisable to make additional provisions to take care of it.

Q. And that report was made to you at the time or prior to the time when this supplemental contract was sent to the head office, was it not?

A. I should imagine it must have been. This is the first information we had of specific provisions for it. And that was taken care of, as I explained in my direct examination, by a preventive.

Q. What were the ample means that you provided

(Testimony of O. N. Guldin.)

or intended to provide in the set as changed—this new set or this [586] modified set made under the supplemental contract?

A. It was taken care of on the line of attaining the end without specifically attempting to build an attachment to the carbureter. In other words, in the reconstruction of the generator we knew that by materially increasing the great area we would reduce the necessary flow of air through the fuel bed, which would have a direct effect of not carrying any excessive amount of dust over.

Q. Let me state it this way, Mr. Guldin; I ask you if I correctly represent it: Instead, then, of providing additional or different means for the removal of dust or fine material carried from the generator into the carbureter, you adopted the method of preventing the fine material going over into the carbureter? A. Under normal conditions?

Q. And you accomplished that by reducing the air pressure—the relative air pressure?

A. By increasing the volume or decreasing the pressure.

Q. And so reducing the air pressure. So that there was a less strong draft—and less ability for it to carry the fine material over?

A. Yes, if the fuel bed was in normal condition, that would be so.

Q. (By the COURT.) That was accomplished by increasing what you call the grate area?

A. Yes, sir, if the fuel bed had been in normal condition the increased grate area would not neces-

(Testimony of O. N. Guldin.)

sitate an increased velocity of the blast.

Q. That is, you simply enlarged the grate area?

A. Yes, sir.

Q. That was the means? A. Yes, sir. [587]

Q. (By Mr. GOUDGE.) In these questions respecting the purpose of the enlargement of the grate area—in these questions that I asked referring to the object of the increase in grate area when this apparatus was modified, and the purpose and intention in the diminution of the air pressure of the blast, we will assume that the fuel bed is in proper condition in both cases, so as to eliminate that factor; then I understand that the change in the construction of this generator by which the grate area was enlarged, this division being put in, the design was to diminish the pressure of the blast by increasing the area of the grate for the same volume of air passing through it?

A. No; your volume would increase and your pressure might decrease, passing through the fire with increased grate area. That was a manipulation of the valve. You can have any pressure behind that valve. The volume is regulated by turning that pressure in the opening of the valve. But the speed of that air through the grate depends on the grate area. In other words, if the grate is twice as large the speed of the air admitted under the grate will be only one-half.

Q. Assuming the same amount of air passing through?

(Testimony of O. N. Guldin.)

A. Assuming the same amount of air passing through.

Q. So that the idea in making this change in the generator was to diminish the speed by increasing the size of the grate through which the same quantity of air would pass? A. Yes.

Q. And in that way you would have less tendency in the draft to carry over the fine material?

A. Yes.

Q. Did you have anything to do with this new design involved in this *increase grate* area and diminution of the velocity of the blast? [588]

A. Yes, sir, I was in constant touch with it in our engineering department in Fort Wayne. We prepared the drawings there and sent them out here.

Q. And your design was based upon the reports that you had as to the operation of the old plant or the first plant?

A. Yes, and the stipulation in your contract.

Q. You had acquired experience in how the plant worked?

A. In a general way. I had not been there.

Q. I mean by report you had acquired experience?

A. Yes, my judgment as an engineer.

Q. And your judgment was based upon the reports you had from your representative here as to the manner in which the former set worked?

A. Yes, with the fuel they had here.

Q. Before passing from that, in connection with this change in the size of the generator, the size or

(Testimony of O. N. Guldin.)

the amount of grate area, of course you had to take into account and did take into account the volume and velocity of blast of the air furnished?

A. Yes, sir.

Q. Now, you said that it was not usual in the operation of water-gas sets to run them continuously twenty-four hours a day?

A. That is not the usual practice, no, in the east.

Q. How many hours each day is it customary to operate such a set?

A. From twelve to sixteen and eighteen, depending upon the manufacture of gas required at the station.

Q. Sometimes twenty?

A. Sometimes twenty. They may run one or two or three days practically at full blast. It is governed by the storage capacity of the gas in the manufacture for the station, [589] and the consumption for the day.

Q. Now, considering only the operation of the set and disregarding the limitations imposed by the storage capacity, it is common to run a set sixteen or eighteen or twenty hours a day and not twenty-four, and then to use some of the hours remaining of the twenty-four for burning out?

A. That is the common practice. But that again leads to something else. It is the custom in a well managed gas-works in operating their own plants, but it has not anything to do with reaching the capacity.

Q. I am asking you only—

(Testimony of O. N. Guldin.)

A. I misunderstood, possibly, your question, but I infer that that is what you want.

Q. I asked if your custom in operating these sets and in further development of your own statement that it is not customary to run such sets for twenty-four hours a day, and that it is customary to clean them out by passing air through and burning them out— A. I refer to the practice in gas-works.

Q. And it is common to do that during some part of the twenty-four hours that is not being used for the production of gas in the set?

A. It is given attention.

Q. And the neglect to do that, to clean and burn out the carbureter, at least diminishes the efficiency of the machine?

A. It would have a tendency to do so, but it will also decrease the capacity of the machine. But in an operated gas-works the capacity of the set for twenty-four hours is not the vital factor. Economy is the important thing and to get the most efficiency. They are supposed to have plenty of capacity to do the work. It is just like you would not run an engine with a hot bearing. [590]

In expressing the opinion that this set had a capacity of three million cubic feet per day, I was figuring on a slower flow of air and slower speed of steam, consequently I would not apply the same rule that I would to a machine that I was driving at full speed, but it figures about between 20,000 and 22,000 cubic feet per square foot of grate area, which is a very conservative estimate. This estimate is

(Testimony of O. N. Guldin.)

based on my experience with any kind of fuel. I have had experience with coke, anthracite, furnace coke, and also soft coal, and my rating is based upon my experience with those fuels.

Q. In building carbureters in those sets have you any rule that determines the relation between the diameter and the height of the carbureter?

A. If I can determine it?

Q. No. Have you a rule governing your design of carbureters which has anything to do with the relation of the diameter and height of the carbureter?

A. Of course we have. That is part of our engineering knowledge that we try to guard as much as possible.

Q. Is there a general rule which governs those relations? If so, what is it?

A. Will I have to give my engineering or professional knowledge here? It is developed at considerable expense. We try to protect ourselves in our offices by even making our employees promise not to give them away. If the question is put differently probably I can answer it.

Mr. GOUDGE.—There is no objection by counsel. I don't know whether I ought to make any response to the objection of the witness or the reluctance of the witness.

The COURT.—Can you avoid it and get it without having him disclose his trade secrets? I know you don't want to do anything of that kind. [591]

Mr. GOUDGE.—No, I don't want to do any in-

(Testimony of O. N. Guldin.)

justice to the witness.

Q. I will divide the question in two, and ask you first if there is a rule followed by you in your design of gas sets which governs and determines the relation between the diameter and the height of the carbureter?

A. There is. Let me understand your question. Do you mean that that rule applies to all sizes of apparatus? All different sizes—the same rule—the same proportion between the diameter and the height?

Q. Yes. A. It does not.

Q. Then, the proportion is not the same?

A. It depends on the sizes.

Q. I say is the proportion the same?

A. No. There is a variation in that too.

Q. Let me state it this way: There is a rule governing your design in these gas sets which describes the diameter of the carbureter and that it should have been a certain height?

A. No. You are asking a general question and there should be a specific one. The oil and the material itself going into it has some effect. We come to the same question of speed as we do in the generator, if you go into it.

Q. Then, if there is no general rule it follows, does it not, that the proportion of the carbureter, that is, the proportion that the diameter bears to the height or the height to the diameter, is designed with reference not merely to one of those two factors, but also with reference to the fuel to be used and the air

(Testimony of O. N. Guldin.)

pressure to be used and the quantity of oil to be used?

A. No. The quantity of oil you would use yes, not *not* the air you are going to use. [592]

Q. Without giving your rule, state upon what factors the height and diameter or the relation of the height and diameter of the carbureter depends.

A. I think I can answer the question best by stating practical experience. It is different in our company from any other. For instance, the diameter of our carbureter is 6 inches larger than the superheater, but the height and cubic contents of our carbureter and superheater is larger than that by any other builder. Consequently, it gives a larger opportunity for handling the oil at the lowest possible temperature, and that is the feature of the machine—of being able to do so.

Q. And that is one of the factors of gas sets of your design and construction? A. Yes, sir.

Q. Other makes adopt a different size carbureter and superheater, and different proportions?

A. Yes, sir.

Q. So that is a matter of engineering opinion in the art of building gas sets what the size and proportion of the carbureter and superheater shall be?

A. Yes. My opinion on that subject is now generally adopted. The machines are being built on these lines of increased size of superheater and carbureter. It is adopted here and in England by the engineering firms.

Q. (By the COURT.) As against what method?

(Testimony of O. N. Guldin.)

A. As against older methods. They have adopted a theory that I advanced of increasing the cubic contents of the carbureter as a decided benefit. They have also adopted my system of high depth of fuel bed. These are now recognized as essential. [593]

Redirect Examination.

(By Mr. CHAPMAN.)

Q. In the operation of single water-gas sets, do they sometimes adopt twin or two generators?

A. There are other apparatus with twin generators in the east.

Q. And this generator is divided by a partition wall through the center? A. Yes, sir.

Q. It crosses the narrow part of the generator?

A. Yes, sir.

Q. So that each compartment is of about what grate area? A. About seventy square feet.

Q. How does the grate area of each compartment compare with the area of the grate of the original machine?

A. The original machine was 86 square feet, I believe. Eighty-five or eighty-six square feet. The individual grate area of these twin machines is about 16 square feet less than the original one.

Q. How does this generator shell as it is constructed in an oval shape divided into two compartments, compare with the apparatus that has twin generators? A. That would be the same.

The COURT.—What is that wall or partition that you speak of?

Mr. CHAPMAN.—You understand, this shell is of

(Testimony of O. N. Guldin.)

oval shape, twenty feet in length and thirty feet across the narrowest part of the shell. As I understand it, this partition wall is a wall of—

The COURT.—Does it extend entirely down to the grate?

Mr. CHAPMAN.—Entirely down to the grate, but only six or seven feet above the grate. [594]

The COURT.—Then the partition does not go up as high as the surface of the coal?

A. (By the WITNESS.) It is divided in two right here.

The COURT.—I understand that. It starts with the grate. Does it go to the top of the coal?

A. Oh, yes. If we had a drawing of the other side it would be clearer. This is the gas passage (pointing to it).

Q. What material is that constructed of—that partition? A. Fire brick.

Mr. CHAPMAN.—I was mistaken about it being only six feet in height?

A. Oh, yes. If you had a one-inch rule I could tell you exactly. It goes above the top of the fuel bed. It goes up about ten feet four or ten feet six. I assume that this drawing is correct.

Q. (By the COURT.) What is the thickness of the partition?

A. I think about thirteen inches. It is laid up with a brick and a half, I think. About fourteen inches.

Q. Do you know what the character of oil used in the carbureter is in the east where the custom some-

(Testimony of O. N. Guldin.)

times is of operating sixteen or eighteen hours a day, burning out the balance of the day?

A. It is a lighter oil than this.

Q. Is it of the same base?

A. No, not an asphaltum base; it is a paraffine base.

Q. Would that have anything to do with the necessity of burning out, and the extent of the deposit?

A. It would. It would not have so much deposit.

Q. Which would not? A. The eastern oils.

Q. Have you seen this photometer the gas company has at their works and used in taking the candle-power during the test? [595]

A. I didn't see any during the test.

Q. Have you seen the one that was used during that time? A. I have seen it.

Q. Do you know the principle on which it operates? A. Yes, sir.

Q. The Sugg photometer? A. Yes, sir.

Q. Can you state whether or not it would be possible to adjust that photometer so as to accurately read or show the candle-power of the oil test without some new adjustment and also show the candle-power of water-gas?

A. I cannot state any method of doing that. In my opinion it could not be done.

Q. Can you explain why?

A. Because the constituents of the two gases are different, and the constituents are of a different flame height in burning. Consequently unless it was an accidental happening of a short flame and a long flame

(Testimony of O. N. Guldin.)

that came the same way, it could not be done. It would not be reliable.

Q. Can you state the extent of the error that would appear?

A. No, that would be very difficult to say even from an analysis. The analysis would vary in one case from another.

Q. Could you say whether it would be a substantial error or not?

A. You mean if the Sugg photometer was calibrated to a twenty candle-power oil-gas what the difference would be with the same instrument measuring twenty candle-power water-gas?

Q. Yes.

A. It would be against the water-gas, and I should say at least one to one and a half candles. But as I stated, it is a matter that cannot be estimated from an analysis. It could only be done by individual calibration with a bar photometer. [596]

Q. How is the candle-power of an apparatus of this kind regulated?

A. By the admission of oil into the carbureter.

Q. In any other way?

A. Yes; you can also regulate it by increasing or diminishing the steam in the generator.

Q. And what effect does the application of more steam have upon the candle-power, what effect will that have upon the amount of gas made?

A. That will have the effect of increasing the volume, if the fire permits it.

Q. I don't know whether you understood my ques-

(Testimony of O. N. Guldin.)

tion. If you reduce the temperature of the generator by the application of more steam, what effect does that have upon the quality of gas made?

A. That would reduce the candle-power of the gas.

Q. What effect would it have upon the quantity of gas made? A. It would diminish the quantity.

Q. And if you regulate the candle-power or increase the candle-power by the application of more oil in the carbureter, what effect does that have upon the quantity of gas made?

A. That would increase the quantity by about 50 or 60 cubic feet per gallon of oil used.

Q. Then, whether or not the quantity of gas made is increased or decreased by the reduction of candle-power, depends upon the means used to regulate it, does it not? A. Yes, sir.

Q. Now, you have said that in the operation of a machine of this character it is necessary to take some time to burn out the carbureter, either each day or by laying off for a day at specified intervals or some intervals? A. Yes. [597]

Recross-examination.

(By Mr. GOUDGE.)

Q. With reference to the control of the candle-power in the operation of such a set as this, if you put more steam into the generator, assuming that you kept your fire so that you may do so, you would produce more gas of a lower candle-power?

A. If you put more steam in the generator and the generator fire is in perfect capacity, and you are not up to the capacity of the generator.

(Testimony of O. N. Guldin.)

Q. And if you put less steam in, still assuming that your fire is good, you produce less gas but of a higher candle-power? A. Yes.

Q. Now, the other way of regulating the candle-power is by putting more or less oil into the carbureter? A. Yes, sir.

Q. And you can increase the candle-power by putting in more oil? A. Yes.

Q. And doing that you would increase somewhat the amount of gas produced, at the same time?

A. Yes, sir; about 50 to 60 cubic feet per gallon of oil.

Q. Now, the limit to that is the capacity of the carbureter to take up the oil? A. And superheater.

Q. Now, suppose you crowd your carbureter and superheater beyond their capacity in the effort to raise the candle-power, what happens in the set? How is that indicated, if at all, in the results?

A. That is indicated by the surplus oil that is not gasified showing in the overflow in the seal. [598]

Q. When you say it shows in the seal, in what manner does it show?

A. In the scum on top of this seal.

Q. This seal is filled with water? A. Yes, sir.

Q. And if too much oil is put in for the capacity of the carbureter and superheater, it will be observed that the water in the seal is oily on top?

A. You mean in the overflow?

Q. Yes, there will be some skim of oil come over with the water? Is that right?

A. Yes, sir. [599]

[Testimony of B. S. Pederson, for Defendant
(Recalled).]

B. S. PEDERSON, recalled on behalf of the defendant, testified as follows:

Direct Examination.

(By Mr. CHAPMAN.)

Q. During this test was the machine operated in the way of making gas the entire 24 hours each day?

A. Yes, sir, that is, including the time of cleaning and charging.

Q. Was it making gas when you were cleaning and charging?

A. No, sir; actually operating it was about 20 hours. That is, making gas and blowing.

Q. What were you doing the other 4 hours?

A. Cleaning the fires and charging.

Q. What time would it take to clean the fires each time?

A. Approximately an hour and a half each time, sometimes a little less.

Q. How many times a day do you clean out?

A. Twice.

Q. (By the COURT.) You say while you were charging the machine was idle?

A. Yes, idle when we were charging and cleaning. It requires opening the machine and shutting down the blast.

Q. You cannot charge it without shutting down the blast?

A. You cannot charge it without shutting down the blast and opening up the machine.

(Testimony of B. S. Pederson.)

Q. (By Mr. CHAPMAN.) When you say "cleaning" do you mean cleaning the carbureter?

A. Cleaning out the fire. When you want to clean out the carbureter you must close down the plant and apply a blast to the carbureter and superheater.
[600]

Cross-examination.

(By Mr. GOUDGE.)

Q. Cleaning out and charging takes how long? Did you include both operations when you say it took an hour and a half? A. No, sir.

Q. Which takes an hour and a half?

A. The cleaning of the fire will take an hour and ten minutes and sometimes an hour and twenty or thirty minutes at each cleaning.

Q. And you do that each day? A. Yes, sir.

Q. Two or three hours would be consumed in the cleaning?

A. Yes, sir, and about an hour a day for charging or putting the fuel in the machine. And the actual operation will run from $19\frac{1}{2}$ to 20 hours a day.

Q. How often is the charging done?

A. Approximately once an hour.

Q. Then that makes four hours during which the machine is not producing gas? A. Yes, sir.

Q. Besides that there is the operation of blowing is there not, the operation called "blowing"?

A. Getting up the heat, yes.

Q. How often does that occur?

A. About half of the time.

Q. And during that time gas is not produced?

(Testimony of B. S. Pederson.)

A. No, sir, only gas for heating the balance of the machine. The commercial gas is not being made during that time to pass into the holder.

Q. (By the COURT.) What is that last operation?

A. (Mr. GOUDGE.) Blowing. Describe that? [601]

A. It is putting the blast under the fire and blowing it through the fire to bring it to an incandescent state.

Q. (By the COURT.) How often did you do that?

A. From five to six minutes, and then we make five or six minutes. We blow the machine and make for five or six minutes, that is make gas five or six minutes.

Q. That is what you mean by saying it takes half of the time to blow—half of the 19 hours?

A. Yes, sir.

Q. (By Mr. GOUDGE.) So that during the whole 24 hours, gas produced or manufactured by this set and passing into the holder is actually being manufactured and produced, say, for 9 to 10 hours each day? A. About ten hours a day; yes. [602]

Mr. CHAPMAN.—Do I understand that these bricks and samples that we have produced here and which have been identified, and the two cans of material that are unopened and have not been identified, are nevertheless deemed in evidence? We may desire to open them and refer your Honor to them simply for the purpose of comparison. We would like to have it understood that they are in evidence.

(Testimony of B. S. Pederson.)

Mr. GOUDGE.—I think there is no objection to the two bricks that were identified by Mr. White, and these two cans. As to the other bricks that were identified but not opened, we think they are not competent or relevant evidence. They were taken out at a different time. They were not part of the lot of bricks from which the fuel used in this set during the test, was taken. They have not any relation it seems to us, to the fuel that was used during the test. They may be different in the moisture content. They are made with different dies. They are made at a different time. And we don't know how many conditions may be different.

Mr. CHAPMAN.—That is all true. They are not part of the bricks that were furnished, nor are they representative of that class of bricks. They were simply taken by Mr. White for the purpose of showing the character of the bricks manufactured with the different dies, and I suppose the only pertinence they could have would be for comparison's sake.

The COURT.—I don't see that they are competent, under your statement, Mr. Chapman.

Mr. CHAPMAN.—That is about the situation. Then the others will be deemed in evidence?

The COURT.—Yes.

Mr. CHAPMAN.—We ask leave to open the cans, simply to present to the Court the character of the ash-pit as compared with the others.

Defendant rests [603]

[Testimony of J. J. McDonald, for Plaintiff (in Rebuttal).]

J. J. McDONALD, called on behalf of the plaintiff in rebuttal, being first duly sworn, testified as follows:

Direct Examination.

(By Mr. GOUDGE.)

Q. Where do you reside?

A. 306 Echandia street.

Q. What is your occupation?

A. Foreman at the present time for the Los Angeles Gas and Electric Corporation.

Q. Foreman of what kind of work?

A. Gas manufacture.

Q. How long have you held that position?

A. Since the 1st of October, 1911.

Q. The first of this month? A. Yes, sir.

Q. What was your occupation prior to that month?

A. Gasmaker for the same company.

Q. How long had you held that position?

A. I should say about six years.

Q. What kind of gas have you been making during that time, and where?

A. Most of the time I have been making water-gas in our own sets, for the Los Angeles Gas and Electric Corporation.

Q. What material have you made water-gas from during that time?

A. Carbon pressed into brick.

Q. And when you say "carbon" what kind of carbon is that? [604]

(Testimony of J. J. McDonald.)

A. I mean good, dry carbon.

Q. And obtained from where and made how, as to the carbon?

A. Made from our own brick presses and pressed into bricks such as these that stand before me.

Q. Where does the carbon that is pressed into those bricks come from?

A. It comes from crude oil, a residuum or by-product from the manufacture of gas from oil.

Q. Were you at the gasworks in March, 1910, during the test of the water-gas set placed there by The Western Gas Construction Company, and sometimes described as set No. 4? A. Yes, sir.

Q. Did you observe the operation of that test or were you employed in any way around or about it during that time?

A. I was the operator on the test on the day run.

Q. You were the operator on this particular set?

A. Yes, on this particular set.

Q. In the water-gas that you have been accustomed to make and have made during your experience as a gasmaker for five or six years, that you speak of, was that water-gas enriched with oil by means of the carbureter? A. Yes, sir.

Q. You are familiar with that method of making water-gas? A. Yes, sir.

Q. What relation, if any, or what effect, if any, does the amount of oil that is fed into a water-gas set in the carbureter have upon the candle-power produced?

A. The more oil you run in your carbureter the

(Testimony of J. J. McDonald.)

higher the candle-power is. The less oil, the less. In other words, when you run more oil in the more deposit it will make and clog up your carbureter and stop it up. [605]

Q. The rule you have stated is the more oil you put in the carbureter the higher the candle-power. What is the limit to that, if any, and what happens—can you put in too much oil in the carbureter for efficient operation of a water-gas set? Say yes or no to that?

A. Yes.

Q. State how you can determine by the operation of the water-gas set whether you are using too much oil in the carbureter—if it manifests itself at all in the operation of the set?

A. I can tell that by looking at my seal-pot. I can see oil in the top of the water.

Q. When can you see oil in the water of the seal-pot?

A. After about two-thirds of the run. With the amount of oil that you can put into the carbureter, you see the oil in the carbureter—that the carbureter is not doing its work.

Q. That is, that there is too much oil put in the carbureter?

A. Yes, sir.

Q. Now, a day or two after this water-gas set No. 4 was being operated in its final test from March 10 to March 30, 1910, did you observe the condition of the seal-pot and the water overflowing from the seal-pot with reference to its oiliness?

A. Yes, sir.

Q. State whether at any time during that period of final test from March 10th to March 30th you saw

(Testimony of J. J. McDonald.)

any oil in the overflow from the seal-pot in this set?

A. Well, I should judge that the last ten days the machine ran, I observed oil each run in the seal-pot. That is, at the end of each run.

Q. Was the condition of the water or the overflow from the seal-pot that you say you observed during the last ten days [606] of the test run of this set, the condition that you have described as indicative of excess of oil in the carbureter? A. Yes, sir.

Q. Did you ever discuss or speak of that condition of oil coming over into the seal-pot during this test with anybody who represented or was employed by The Western Gas Construction Company?

A. I called Mr. White's attention to it several times when I was working.

Q. What did you say to him?

A. I told him that the carbureter was more or less choked up, and we were not burning the oil and I called his attention to the *oil* the seal-pot at the end of each run.

Q. What did White say?

A. Sometimes he would say it was too bad or something like that, and to do the best I could.

Q. Speaking to you? A. Yes, speaking to me.

Q. When you say that this condition was noticeable at the end of each run, what period of time do you refer to as a run?

A. We were to blow six minutes and run six minutes. We were to put in the oil five minutes, if we were burning a hundred gallons, and I should judge it was about the last two minutes of the run.

(Testimony of J. J. McDonald.)

Q. You mean at the end of each six minutes of gas production? A. Yes, sir.

Q. Did you see the fuel that was used in this water-gas set during the test run during the time I have mentioned? A. Yes, sir. [607]

Q. I call your attention to this brick which is wrapped in the paper and which has been identified by Mr. White, and ask you whether that is a fair sample of the kind of bricks that were being used in this test during the test run?

A. That is as good a brick as I have seen during my experience of handling water-gas, if not better. It is a better brick than we have used in our own water-gas set.

Q. As to this particular brick, first of all, is this representative of the kind of brick that were actually used? A. Yes, sir, the same size brick.

Q. As to texture and hardness and firmness and general appearance, it is a fair sample of the brick used in this set? A. Yes, sir.

Q. Did you see the fuel—this brick fuel—actually delivered into the set during the test run?

A. Yes, sir, I done that myself.

Q. Did you observe whether or not in the course of the delivery of the brick into the generator and during its elevation to the bin and its passage from the bin down the chute into the generator, whether it broke or any of them were broken or became broken?

A. There was a portion of them broken, but not many. They couldn't help but get broken, some of them. The bricks were in good condition,—a good dry brick.

(Testimony of J. J. McDonald.)

Q. In operating sets, you have during your experience as a water-gas set operator—not during this test but on your own sets—what has been your experience in reference to bricks breaking while they are being handled and delivered into the generator? Does that happen or does it not?

A. It sometimes happens. It depends on the rough usage of the men handling them. [608]

Q. How did the bricks that were actually used in this gas-set during the test compare with the bricks that you were accustomed to use in your sets or the sets belonging to the gas company as to hardness and as to their keeping their form while being handled in the generator?

A. These bricks are the best bricks that I ever handled in my experience in a water-gas set. That is, I am talking about No. 4 water-gas set. The brick handled there were the best bricks I have used in my experience with the Los Angeles Gas Corporation.

Q. When you say "best" you mean the best in what respect? A. They were dry brick, and solid.

Q. Now, you say the brick go down the chute to the generator? A. Yes, sir.

Q. You recall, do you, that the chute was perforated? A. Yes, sir, the chute was perforated.

Q. State what was the effect of the passage of brick and material down the chute of those perforations as to the removal of small particles of dust from the whole mass of fuel. What was the effect of these perforations in the chute upon the fuel as it went down?

(Testimony of J. J. McDonald.)

A. When once they would get to the generator, the perforations or holes would take the dirt away from going into the machine.

Q. Did it do so? A. Yes, sir.

Q. Was it part of your work while you were helping to operate this water-gas set during the final test to observe the condition of the fire in the generator?

A. Yes, sir. [609]

Q. And in operating water-gas sets during your five or six years experience with the gas company was it a part of the business of operating a set to notice the condition of the fire?

A. It is his duty at all times.

Q. What is required for the operation of a set with reference to the fire, and what is the reason for observing the condition of the fire?

A. If your fire is not in a good condition, if she is clinkered or if there is holes in it, or something like that, you don't get good results.

Q. If such a condition exists, can that be seen by the operator?

A. Yes. That is, when you open up your generator to coke up which we used to every hour in this particular set.

Q. What generally was the condition of the fire in this set at the time you observed it—opened it up and looked at the fire?

A. I should judge the fire was in good condition.

Q. How did it compare with the condition of the fire that you were accustomed to keep in the set that you operated?

(Testimony of J. J. McDonald.)

A. Something about the same, not much difference.

Mr. GOUDGE.—That is all. [610]

Cross-examination.

(By Mr. CHAPMAN.)

Q. In whose employ were you at the time you were operating the set?

A. The Los Angeles Gas and Electric Corporation.

Q. And had been operating one of their water-gas sets on the place at that time?

A. Oh, I had been previous to this set.

Q. When you took charge of this set, you closed down your other sets?

A. Yes, sir, our own water-gas set was shut down for this purpose while on the test.

Q. You acted under Mr. White during this test?

A. Yes, sir.

Q. Was he there a great part of the time?

A. He was there mostly all the time with me in the day time.

Q. Talked to you about the condition?

A. Yes, sir, quite frequently.

Q. Did you ever offer any advice as to the measures to be taken to improve conditions?

A. I didn't think it was necessary to offer advice to a man like Mr. White. He was supposed to be a high-class gasmaker. I wouldn't think it was my duty to offer him advice.

Q. Then, you mean to say that you did not offer him advice?

A. Except when he came to talk about the carbureter and there was too much oil, I called his at-

(Testimony of J. J. McDonald.)

tention to it. I never offered advice about running the machine. [611]

Q. And during the last ten days of the test you saw oil at the end of each run?

A. Yes, sir, I saw oil in the seal-pot.

Q. You didn't see any during the first few days of the test before the apparatus was shut down for recheckering?

A. That is, on the last test? At the end of the run I could notice a little oil. She was shut down because the carbureter was clogged up.

Q. And after it was rechecked you did not notice any oil?

A. Not for a few days; I should judge three or four days.

Q. And then during the last ten days of the test you noticed oil in the seal at all times?

A. At the end of the run.

Q. Now, you say that condition might result from overfeeding?

A. It could not happen any other way.

Q. What is it that gasifies the oil?

A. Heat in the carbureter.

Q. And if your carbureter was not sufficiently hot, the oil would not be gasified?

A. It would be gasified to a certain extent. Most of the oil would come to your superheater and finally into the seal.

Q. So the appearance of the oil in the seal could result from something else than too great a quantity of oil in the carbureter?

(Testimony of J. J. McDonald.)

A. The only way it could result was that the carbureter was not hot enough and you were not able to burn the oil.

Q. Do you attribute the appearance of oil in the seal during the last couple of minutes of the run to the fact that more oil was fed into the carbureter than its size warranted, [612] or do you attribute it to the fact that owing to some conditions that prevailed there the heats were not sufficient?

A. I attribute it to the fact that the heat was not sufficient and that the carbureter was not able to burn the oil.

Q. On account of the fact that it was not large enough and did not have sufficient heating surface, or that the fires were not sufficient to keep the carbureter hot?

A. She didn't have heating surface. She was not able to burn the amount of oil that was put into that shell.

Q. During the first three days of the test and during three or four days following recheckering, did you put in any less quantity of oil than you did during the last ten days?

A. The first day I started up after the recheckering I put in less oil, till I got the machine up to where she could take her full capacity.

Q. That was the first day?

A. Yes, I should judge the first six or eight hours.

Q. If you had put more oil in during the first day, you would have made more gas?

A. It is not customary when you start up a new

(Testimony of J. J. McDonald.)

machine to go to work and burn her out to start with.

Q. I ask you what the fact was, whether you would have made more gas the first day if you put in more oil than you actually did?

A. It would not, because the machine was not hot enough to burn it, because we were just heating it up and burned less oil till the machine was up to the full heat to take a full run.

Q. How many gallons of oil did you put in that day as compared to subsequent days?

A. Up to about noon we burned forty or fifty or sixty gallons to a run, and in the afternoon something like a hundred [613] gallons to the run.

Q. Did you continue to burn one hundred gallons to the run almost every run thereafter?

A. Almost every run thereafter.

Q. Why didn't you put in more on the first part of the day than you did later?

A. Because the machine was not hot enough to take it.

Q. Was that your judgment of it?

A. That was the orders from Mr. White. I worked particularly under Mr. White, and done as he told me to.

Q. You say you did thereafter continue to put in a hundred gallons of oil for each run up till the end of the test?

A. Not all the way through. The last three or four days we put some oil in the generator; probably forty or fifty gallons, some runs, or twenty.

Q. Now, you have said that this carbureter in

(Testimony of J. J. McDonald.)

your judgment did not have sufficient heating surface or capacity to take care of that quantity of oil without its showing in the seal. Will you kindly explain why it was that it did not show in the seal the first six or eight or ten days run and did the last ten.

A. When the machine was recheckeder the carbureter was perfectly clear. She ran all right for two or three days and held up good, and after that when she was getting so much oil, she was naturally clogging up a little by little till the last three or four days of the test. She was not able to take her oil. It was all coming out in the generator to help out the carbureter.

Q. Then, the first three days that you ran and the next three or four days after the recheckering, the carbureter did have sufficient heating surface and was of sufficient size to have handled a hundred gallons of oil per run? [614]

A. A hundred gallons of oil per run.

Q. (By the COURT.) What do you mean "per run"?

A. That is while you are making gas.

Q. For what length of time?

A. The six minutes that you are making gas.

Q. (By Mr. CHAPMAN.) If it did take care of that much oil during a number of days, doesn't that prove that it did have capacity to handle that amount of oil? A. No, sir.

Q. And without having the capacity, it did handle it, didn't it? A. It handled it for three days.

(Testimony of J. J. McDonald.)

Q. Explain how it happens that a machine that has not the capacity to handle a hundred gallons of oil per run, nevertheless could handle it without its showing in the seal?

A. For the first three days the machine was in good condition, and the new checker-brick, you must admit, had a good fire, and you could get a good heat on it, and therefore she could take the oil to burn it. From then on the carbureter was more or less clogging up each day, which it naturally will. And towards the end she was clogged up so that I could scarcely get the blast through it.

Q. What you mean is that when the machine was clear and in good condition it did have the capacity to handle that quantity of oil, and after it became clogged it did not have. A. That is the way.

Q. Do the carbureters in your machines clog up in three days so that they cannot handle their full efficiency of oil?

A. No, sir, we run our generators for a year and then they don't clog up. They are in good condition in a year.

Q. This carbureter which did have capacity when it was in good condition, nevertheless clogged up in three days? [615]

A. Yes, sir. If we would take the sets that we have and overcrowd them, it would be just the same.

Q. If you overcharged them with oil?

A. Yes, sir.

Q. And then it immediately appears in the seal?

A. Yes, sir.

(Testimony of J. J. McDonald.)

Q. Then, isn't it true that if you did charge with oil and it did not appear in the seal, that you were not overcharging?

A. You cannot for a day or two notice it. It won't hurt the machine, apparently, for a day or two, but if you keep on it will.

Q. You can run your carbureters for a year without having them clog up? A. Yes, sir.

Q. And without even burning them out?

A. We burn them out once in a while.

Q. How often?

A. Maybe once every two weeks. Sometimes once a week or something like that. We burn them out for twelve hours and sometimes twenty-four hours.

Q. Is it not a fact that you invariably burn out the carbureter for a full day one day in every seven?

A. We have been doing it during the past year or so.

Q. No fine stuff blew over from the generator into this carbureter, was there?

A. I couldn't notice any.

Q. Wouldn't you have known if any had blown over there?

A. I couldn't notice it very well. There was a dust chamber to catch all such dust as that.

Q. And all of the deposit in the carbureter then was due to overcrowding with oil? [616]

A. Yes, sir.

Q. You saw considerable quantities of dust taken out of that chamber that was put there to catch it?

A. Yes, sir.

(Testimony of J. J. McDonald.)

Q. And considerable quantities taken out of the ash-pit too, didn't you?

A. Nothing more than we take out of our own water-gas set in proportion to the size.

Q. How is the carbureter in your sets located with reference to the generator? Is it the same as this?

A. Our sets are straight shot—one-piece sets.

Q. Then, when you are blowing through the fire in the blow period, you blow through the carbureter from the bottom?

A. Yes, sir, in a one-piece set you blow through your fire into the checker-brick and out through the top of the machine.

Q. And what in your machine have you devised to catch this fine stuff that flies over?

A. We ain't got none.

Q. And you use the same kind of fuel that was used in this machine?

A. Yes, sir. The only trouble is the fuel we use in our own is not as good as was used in the No. 4 water-gas set.

Q. And still you have no dust flying over?

A. Oh, sometimes, when you blast too heavy, you probably blow a little dust. We have no means of catching it or anything like that.

Q. Did they blast too hard in this machine?

A. The trouble is she did not blast enough, the way it looked to me.

Q. Didn't put enough blast through it? [617]

A. It looked that way to me.

Q. Didn't have blasting pressure?

(Testimony of J. J. McDonald.)

A. There was sufficient pressure, but they didn't blow long enough to get up their required heat.

Q. Did you tell Mr. White that?

A. As I said before, I didn't think it was my duty to tell an expert that. I did exactly as he told me.

Q. You did not tell him? A. Not that.

Q. Did you tell Mr. White many times during the operation of that set that it was an awful shame to be served with material that they were giving you, on account of the tremendous quantity of dust that went into the carbureter?

A. No, sir; I never told him anything of the kind.

Q. Never commented on the quantity of fuel?

A. We talked of it but I always admitted that the fuel was better than we had for our sets.

Q. Didn't you tell him it was an utter impossibility to make gas with that stuff?

A. Not that I know of.

Q. What did you tell him?

A. The only thing I told Mr. White was towards the end of the test, I called attention to the carbureter getting clogged up, and also the oil in the seal-pot, saying that I couldn't get much blast through the carbureter, and my pressure gauge was on there to prove it.

Q. Most of the brick that you have used during that time or before are as good as this brick here?

A. No, sir.

Q. Not as good as what you are using at the present time?

A. These brick are better than what we are using.

(Testimony of J. J. McDonald.)

Q. You have been up in the courthouse here to examine these brick?

A. No, sir, I never was up here before. This is the first time.

Q. How can you state they are without having touched the brick? How can you sit there without having touched the brick and tell that it was better?

A. Oh, well, appearances. It looks to be a better brick.

Q. Just from the witness-stand you are able to tell from glancing at it that it was better brick than any you had? (The bricks to which the witness referred were lying upon a table under the Judge's bench, and the witness was sitting on the witness chair a distance of at least ten feet from the bricks.)

A. I should think it is, anyway.

Q. Come over here and take a look at it. Did all the brick that you used down there have those cracks that you see running through it?

A. That we are using at the present time?

Q. No, during the test?

A. No, you wouldn't say they were cracked like that all the time.

Q. Then, this is a worse brick than you had at that time?

A. I won't say it is poorer. I never looked at them so close as to see cracks or anything like that. I did not have time to pick up a brick and look at it that way. I had something else to do.

Q. You didn't pay attention to the fuel?

A. I did when it went into the generator, but I did

(Testimony of J. J. McDonald.)

not pick up the bricks to see the cracks.

Q. And were there ever bricks broke during the course of handling? A. Some of them were.

Q. Do you mean two-thirds of them?

A. No, sir, there was not.

Q. How much, about a tenth? [619]

A. I couldn't say how much.

Q. Give us an idea how many of them broke.

A. I should judge there might be one-tenth, but I couldn't observe that close.

Q. Some days it broke more than others?

A. They were just about the same all the time.

Q. You don't think that more than one-tenth of them broke?

A. There might be. As I said before I could not observe them that close.

Q. Isn't it a fact that nine-tenths of that brick before they got to the generator broke? A. No, sir.

Q. Did you ever stand there in a cloud of smoke from these bricks that were delivered there during a charge? A. Sometimes.

Q. So dense that you couldn't see?

A. I could see the brick all the time, just the same, because I made it a practice to see them for my own benefit and have the fire in good condition.

Q. How could you see them when you were in a cloud of dust?

A. When there was smoke it would go up next to the building. I was down on the floor and I could observe the brick going into the generator.

Q. Where did that cloud of dust come from?

(Testimony of J. J. McDonald.)

A. Came from the carbon when they started to burn in the generator. They would drop the bricks in and they would start to burn, and the smoke would come back to the charging doors—

Q. I am not talking about smoke; I am talking about dust. A. The dust didn't bother me. [620]

Q. You did not have any dust?

A. There was dust there but it never prevented me seeing the brick.

Q. Did you ever see any dust come through the slots in the chutes when the bricks went down?

A. Yes, I have seen dust come through these perforated holes they made there.

Q. But it did not bother you any?

A. It didn't prevent my seeing the bricks when I was charging.

Q. How about the dust on each charge? Was it about the same, or was it more one time than another?

A. Sometimes it would be more. It would depend on the size of the charge we put in the generator. Sometimes we put a light charge and sometimes a heavier charge. When the charge was heavier, the dust would be a little more.

Q. Did you ever see any waste matter accumulating there from the stuff that came through the chutes? A. Yes, I have seen waste.

Q. Considerable quantities?

A. Nothing more than we see in our water-gas sets; sometimes not as much.

Q. You had some dust in your own water-gas sets?

(Testimony of J. J. McDonald.)

As much as twelve or fifteen or twenty thousand pounds of waste? A. No, sir.

Q. Did you ever have that much accumulate in these operating sets?

A. Twenty thousand pounds in one day?

Q. Yes.

A. No, sir, not twenty thousand pounds. Of course, I didn't work on the night shift. I am talking about my own day shift that I was operating on.

[621]

Q. Did you see these records kept of the waste?

A. I didn't have nothing to do with them. My helpers took care of that.

Q. Where did that waste come from?

A. It came from the brick. It came through this perforated hole. And some of it was caused by the way the holes were put in. The bricks would slide down and the edges would have a tendency to make dust.

Q. There was some dust?

A. Yes, I admit that. You have to have some dust if you are charging at all. You will have dust.

[622]

[Testimony of V. C. Carey, for Plaintiff (in Rebuttal).]

V. C. CAREY, called on behalf of the plaintiff, in rebuttal, being first duly sworn, testified as follows:

Direct Examination.

(By Mr. GOUDGE.)

Q. Where do you reside? A. In this city.

Q. What is your business or occupation?

(Testimony of V. C. Carey.)

A. I am with the district attorney in this city.

Q. In 1910, in the month of March, did you have anything to do with the operation of or did you observe in any manner the operation of the water-gas set installed in the works of the Los Angeles Gas and Electric Corporation by the Western Gas Construction Company?

A. I was down there during the test.

Q. For what period of time were you there at the gas-works?

A. I was there for about six months at the gas-works, altogether.

Q. Give the time—the beginning and the end of that six months.

A. Well, the last was August 1st, when I quit.

Q. What year? A. 1910.

Q. Do you know how early in the year you were there? A. Six months from that—April.

Q. Six months prior to August 1st would bring you to February 1st. Were you there during February?

A. I guess that was the 1st of February that I went to work for them.

Q. Did you ever meet Mr. White of The Western Gas Construction Company? A. Yes, sir. [623]

Q. During the final test of this apparatus in the month of March, 1910, did you have any conversation with Mr. White about the candle-power of the gas that was being produced by the set? A. Yes, sir.

Q. State when and where that conversation took place, and what the conversation was.

A. I had several talks there of it. I don't know

(Testimony of V. C. Carey.)

just exactly what day that was on, and I don't know the exact conversation. But I wrote it down at the time, and I have it in my pocket and I can read it.

Q. You made a memorandum at the time of the conversation? A. Yes, sir.

Q. You may refer to any memorandum you made at the time and use that memorandum for the purpose of refreshing your recollection, and if it does refresh your recollection, you may state what the conversation was.

Q. (By the COURT.) What did this gentleman say his business was there?

Mr. EDWARDS.—Inspector of the gas-works.

Mr. GOUDGE.—He did not say that he was working there—he did say that he was working there, but did not state what he was doing.

Q. (By Mr. GOUDGE.) Mr. Carey, state what your work was during this time that you were at the gas-works.

A. I was inspector of construction for Mr. Luckenbach.

Q. (By the COURT.) In the employ of the company? A. Yes, sir.

Mr. CHAPMAN.—May we see that memorandum before you use it?

Mr. GOUDGE.—No, not before he uses it.

The COURT.—Oh, yes. You cannot interrogate a witness if the adverse side wants to inspect it—you cannot ask him anything about it. [624]

Mr. GOUDGE.—But we are not laying the foundation to introduce a document.

(Testimony of V. C. Carey.)

The COURT.—I understand that. But it is for the purpose of refreshing his recollection, and my understanding of the rule is that you cannot ask a question of a witness about a memorandum or paper which you intend to interrogate him about without giving the opposite side an opportunity to inspect it.

Mr. GOUDGE.—I understand the rule, but I think the distinction is that if we do not ask him what the paper says—

The COURT.—Oh, that rule wouldn't do—to say that the witness should go on the stand and refresh his memory from a memorandum that the other party has not an opportunity to inspect.

Mr. GOUDGE.—Yes, they have a right afterwards.

The COURT.—I may be wrong and our practice may be wrong. But let the opposite counsel inspect the memorandum.

A. I haven't found it yet.

Mr. EDWARDS.—When he does find it, he can tear out that sheet and show it to them.

Mr. CHAPMAN.—We want to see the whole record.

Mr. GOUDGE.—Certainly they are not entitled—suppose he might have a record file and he uses one letter. They can't have the whole record.

The COURT.—Well, I don't know. If it bears on the case, why shouldn't they have an opportunity to examine?

Mr. GOUDGE.—But they cannot indulge in a fishing expedition.

(Testimony of V. C. Carey.)

The COURT.—No, but I will certainly hold that anything that he proposes to use, they can see.

Mr. GOUDGE.—Oh, yes, we are bowing to that ruling.

Mr. TRIPPET.—He seems to be reading.

Q. (By the COURT.) Are you reading anything there?

A. I am reading exactly what I wrote there.

Q. At the time of this conversation? [625]

A. Yes, sir.

Mr. GOUDGE.—Our instruction to the witness is that all the parts or any documents that he has that refers to that, he is to take out and preserve and hand to counsel.

Mr. TRIPPET.—We insist on seeing the sheets on which the thing is written.

The COURT.—Oh, yes, I do not intend to conduct your case, but it certainly would not bear a favorable aspect for you to suppress anything that he is refreshing his memory from.

Mr. GOUDGE.—We do not want to be understood as doing that. But he has here twenty-five or thirty or forty pages. He has referred to one or two. I don't know what the others are. Our point is that all the pages he refers to, he should submit to counsel, but no other things which do not refer to this matter.

The COURT.—No; if they have no connection with the matter. But I do not understand why you are objecting to this. You say you have no idea what is in there.

(Testimony of V. C. Carey.)

Mr. GOUDGE.—No, sir, I do not. I never have seen them.

The COURT.—Give them the papers that refer to this matter. For the present, do not examine except what is pointed out to you.

Mr. TRIPPET.—I want to see that whole page.

Mr. GOUDGE.—We have no objection to the whole page. We are not trying to split the page.

Mr. TRIPPET.—May it please the Court, this memorandum that he shows us, we have folded down the page and read the next page. This page is marked page 2, and it starts with "and" with a little "a," evidently showing that it is brought over from the preceding page. This relates to his being there. The whole memorandum shows that it was written up after this test and not at the time he says, on the 17th of March. The language used here indicates that the thing was written up after the test.

The COURT.—Ask him when it was written up.

[626]

Q. (By Mr. TRIPPET.) When did you write this?

A. I wrote that at the time Mr. White told me.

Q. (By the COURT.) In his presence?

A. No, sir.

Q. (By Mr. TRIPPET.) Where did you go to write this?

A. About a block and a half from where he told me.

Q. Did you go into any office? A. No, sir.

Q. Did you have this paper with you?

(Testimony of V. C. Carey.)

A. Yes, sir.

Q. What did you go there for? A. To write it.

Q. What did you go down to the gas-works for?

A. I was inspector of construction.

Q. You mean by that that you were a detective?

A. No, sir.

Q. Did you go down there to interview him?

A. No, sir.

Q. Now, you say you wrote this at that time?

A. Yes, sir.

Q. Did you write the whole two pages, the one that you showed me and the next page, at the time?

A. I don't remember.

Q. When did you write the rest of it?

A. I don't know what is on the next page—only just from what I found.

Q. When did you write this first page?

A. I don't know what it says above where I found the candle-power.

Mr. GOUDGE.—The witness should be shown the paper when he is asked about it.

The COURT.—Oh, yes, I will have it thoroughly tested. [627]

Q. (By Mr. TRIPPET.) Read those two pages and see when you wrote the two pages.

A. I wrote this all and the one above it right around from the compressor station, right when he told me the candle-power. I can't explain it.

The COURT.—That is what they want.

A. You see, I was working for the Gas and Electric Company as inspector, and I had a horse and

(Testimony of V. C. Carey.)

buggy, and I used to drive to the different places, back and forth, and when this set started or they were going to have this test, I got all I could and did all I could do around there on this No. 4, and I knew I had to put a report in on it, and I put down everything so that I could write a report. That is why I did this. But where it has other words filled in, that gives counsel the impression that I was writing up a report. I would be standing on the street corner and had this roll of paper, and I would stand there and write it, and then I would take it to the office and fill it in. But I would fill it in the next morning or the next night in a little better shape. But there are some words here that were written in afterwards, but it does not change the meaning of it at all.

Q. (By Mr. TRIPPET.) When did you write the words in after?

A. Well, for instance, here is—well, I would be writing along here and I didn't put "looking" and I put "look." See? And then I put the "ing" on it when I would have it typewritten up.

Q. Now, on this page marked 2 here, it starts out "and he said, he said, you, meaning me, can put in a word now and then and help me along some. I would ask him every day if I could do anything, but he always said he was getting along nicely and had nothing to kick about." When did you write that he said that every time?

A. Mr. White told me that right in front of the

(Testimony of V. C. Carey.)

superintendent's office, right at the hitching-post.

[628]

Q. "I would ask him every day." Did you ask him every day how he was getting along?

A. Well, that may be a little bit too strong, but I asked him a great many times.

Q. And then after you asked him every day, you wrote it down here that you had done so?

A. Well, there is some more papers in there too, and lots of little slips.

The COURT.—Let me suggest to you. You don't get the idea of counsel. You state that it was written up immediately after your interview with Mr. White. Now, in that memorandum you say that you would ask him every day or "I would ask him every day." That evidently refers to sometime back. Do you see the point?

A. I understand you.

The COURT.—That is what he is getting at. It shows that it could not be immediately after the interview, because you let your interview go back many days.

A. When I wrote that, I had asked him every day and I put all this in. I don't believe there is any more memorandums in there about my asking him every day.

The COURT.—The point counsel makes is that the last interview, the memorandum could not have been made at the time you had the interview.

A. Well, I didn't get it right. I should have said on that paper—

(Testimony of V. C. Carey.)

The COURT.—I simply wanted to call your attention. I did not think you understood the point Mr. Trippet is making. With the exception of that, the balance of it you say, was written about the time of the interview which you are undertaking to give?

A. Yes, sir.

The COURT.—Well, go on now.

Q. (By Mr. GOUDGE.) After refreshing your recollection, [629] state when and where you had any conversation with Mr. White respecting the candle-power of the gas produced in this set, and what was said at that interview.

A. On March 17th I asked Mr. White about his candle-power.

Q. Where was that? Where did you ask him?

A. Well, it was right around the set somewhere.

Q. What did you say to him and what did he say to you?

A. I asked him how about his candle-power, and he said the candle-power was all right. I told him the test was supposed to be twenty candle-power, and he says, "Oh, no; good commercial candle-power is what he was making."

Q. Was that all of that conversation on that subject?

A. He said he understood that the test called for twenty candle-power and he was trying to get it up, but we could not expect him to do everything. That he had a job on his hands and he couldn't do everything.

Q. Did you have any other conversation with Mr.

(Testimony of V. C. Carey.)

White on the subject of candle-power during this period of the test from the 10th to the 30th of March?

A. Yes, I had several conversations.

Q. State, if you can, when they occurred and where, and the substance of them.

A. I will have to refer to that. I cannot recall them. I have had several things to think about since then and I cannot call any of them hardly.

Q. You may refer to any memorandums that were made at the time.

Q. (By Mr. TRIPPET.) What is that paper that you took out of your pocket?

A. This is another report—another typewritten report on this same stuff.

Q. When did you make it? [630]

A. This was condensed afterwards. It was the report I put in covering these memoranda.

Mr. TRIPPET.—The witness is looking at it. I insist on looking at it.

A. I didn't look at it. I looked at the back here. I was very careful not to look at it.

The COURT.—There is a method by which you can get it if it bears any pertinency to this case. The court will have power and will control it.

A. On February 17th I was standing in the outside office, and Mr. White said to Mr. Millard he liked the chutes, and he was satisfied with them; that they were all right. That is before the test. Then, I talked to him right outside of the office and he told me the same thing, and he also outside stated that he was satisfied the way the corporation was

(Testimony of V. C. Carey.)

helping him along; that they were doing all they could for him, and he appreciated it.

The COURT.—Now, gentlemen, you may take that paper that the witness has. Counsel for defendant may examine that paper, if they desire.

Mr. GOUDGE.—Is your Honor referring to the second paper?

The COURT.—Yes; the paper just referred to. It may have an important bearing. I don't know. He says it is a report that covers these memoranda.

Mr. GOUDGE.—We have no objection.

Mr. EDWARDS.—We would just as soon offer it in evidence. We have never seen that file.

The COURT.—Any effort to keep back or withhold evidence from the court, necessarily leaves an unfavorable impression and I do not want to put you gentlemen in the attitude of objecting to something that you didn't know anything about.

Mr. GOUDGE.—We were more free to object because we knew nothing about it. We were relying on the technical objections [631] that we thought we had.

Adjourned until 2 o'clock P. M.

October 5, 1911, 2 o'clock P. M.

V. C. CAREY, recalled.

Cross-examination (Resumed).

Q. (By Mr. TRIPPET.) Where is that document you had this morning?

(The witness hands counsel a document.)

Mr. GOUDGE.—We have no objection to the examination of the whole of that document by coun-

(Testimony of V. C. Carey.)

sel. We would prefer that it should not all be introduced in evidence, because it only encumbers the record.

The COURT.—No, it would not be material, of course.

Q. (By Mr. TRIPPET.) When did you make this typewritten copy?

Mr. GOUDGE.—We object to that question as based on something not in evidence. There is no typewritten copy there.

Q. (By Mr. TRIPPET.) When did you make this document?

A. I don't know when I had this written up. I suppose it was April 17th, the day before it was dated. I had come in the night before, and probably gave this to the stenographer in Mr. Luckenbach's office, and he wrote it up the next day, but I am not sure.

Q. I notice on page 3 here that you have scratched out some of it.

A. You will find it duplicated there then.

Q. Where? A. Some place.

Q. The same thing duplicated?

A. I don't know just why it was scratched out. Probably I found it in two places the same.

Q. Did you leave this sheet for the purpose of writing up [632] this memorandum and fill it in at various times?

A. No, I just carried those papers in my pocket, and I would write a little bit on them and then write some more.

(Testimony of V. C. Carey.)

Q. You were employed the 1st of February by the gas company or about that time?

A. I think that was the date.

Q. Inspector of what, did you say?

A. Construction.

Q. Did you ever have any experience in constructing anything?

A. How do you mean, anything? I don't understand you.

Q. Did you ever construct any gas-works?

A. Nothing in the gas line, no, sir.

Q. Never knew anything about water-gas sets?

A. No, sir.

Q. And you remained in their employ till June?

A. Yes, sir.

Q. When you were employed, were you told that you were wanted to inspect this set? A. No, sir.

Q. That was not told you? When were you assigned to inspect this? A. I never was.

Q. Just did it of your own volition?

A. Yes, sir.

Q. How came you then to make a report on it?

A. I made reports on everything I saw around the gas and electricity and street mains, overhead wires, poles, cars and oil tanks.

Q. And everything you heard anybody say?

A. Everything; right straight along.

Q. I notice this typewritten paper here dated April 16th [633] or April 18th—that you have got on the second page of it a date "3/2/10." Is that March 2d?

(Testimony of V. C. Carey.)

A. Yes, I guess that is what it is meant for.

Q. And on February 14, 1910, you have got a report about Mr. White. Is that right?

A. Whatever is there is right.

Q. Then you did start in to inspect Mr. White on February 14th at least?

A. Well, you see I can't state. I have forgotten all that down there. I am going by the date that is there.

Q. Well, according to that you had started in on February 14th?

A. According to that; yes, sir.

Q. In this document it says on February 17th Mr. White said so and so. Did you see him on that day?

A. Yes, sir.

Q. And on February 18th? A. Yes, sir.

Q. What were you trying to find out?

A. Anything I could find out.

Q. Why? Were you instructed to?

A. No, I was not told to go to Mr. White and ask him anything. I was told to go down there and if I found out White wanted something to see that he got it.

Q. And if you found out anything against him to report it?

A. Well, if I found out something that he was doing that I thought was going to come up later, I would make a little note of it.

Q. And report it?

A. No, I wouldn't report it. I didn't make a re-

(Testimony of V. C. Carey.)

port on this set at all until just as it is on that paper.

Q. Until April 18th?

A. I didn't make a report right after the set closed for the test at all. [634]

Q. Were you instructed to gather evidence for any case? A. No, sir.

Q. At the time you went down there to see Mr. White? A. No, sir.

Q. You had no instructions to find evidence, to find out if he could prove anything? A. No, sir.

Q. I notice in this memorandum—

Mr. GOUDGE.—Will you identify the memorandum you refer to?

Mr. TRIPPET.—He says he wrote April 17th and dated it April 18th. In parenthesis it says: "You can prove this with a demonstration at the works."

A. Yes, sir.

Q. (By Mr. TRIPPET.) Then you were evidently, when you wrote that, reporting evidence, were you not?

A. No. Mr. Luckenbach asked me—I remember Mr. Luckenbach asked me—he was complaining about the bricks and the waste and the condition and fuel and how they broke up, and all that, and I talked to Mr. Luckenbach one day about that, and he says, "Write it down." But I didn't write it down and give it to Mr. Luckenbach at all. He says, "Write it down and make a note of it so we can get it when we want it." And what I said, "You can prove this at the works," it meant if he wanted to

(Testimony of V. C. Carey.)

go down there he could see what I meant by the talk that I had with him in the office.

Q. Did you have any memorandum in this pencil memorandum that you read from about the bricks?

A. Well, I made some memoranda in there referring to the bricks, because I dictated this from that.

Q. Where did you say you are employed now?

A. The District Attorney's office of Los Angeles County.

Q. Are you an attorney? A. No, sir. [635]

Q. What business are you in in the District Attorney's office?

A. I have no regular business there.

Q. You are an inspector there, are you?

A. No, sir.

Q. Just on the pay-roll? A. Yes, sir.

Q. For the purpose of being assigned to detective work? A. Not principally.

Q. Partly?

A. No—well, if there is something I can do, I do it.

Q. Were you ever a detective before you went to work for Mr. Luckenbach? A. No, sir.

Q. Or inspector of anything? A. No, sir.

Q. What did you do before that?

A. I worked for Captain Fredericks.

Q. In the District Attorney's office?

A. Yes, sir.

Q. You testified upon a conversation that you had with Mr. White and Mr. Millard. That was on February 17th, wasn't it?

(Testimony of V. C. Carey.)

A. I don't know. It says on there.

(Counsel hands memorandum back to the witness.)

A. On this paper it says February 17, 1910, talked with Mr. White.

Q. When you started in your evidence to-day you said that you didn't remember anything about this, but that you had a written memorandum of it. Is that what you testified to? A. Yes, meaning this.

Q. Meaning what? A. I can explain it. [636]

Q. All right.

A. Meaning that I cannot say right off what they are. I have forgotten them. But when I looked at this I can tell you where it was and all about it.

Q. When you took the witness-stand did you remember the conversation with Mr. White about the candle-power? A. No, sir.

Q. Didn't have anything in your mind about it?

A. No, I can't say that I recalled it at all.

Q. And did you remember about it when you saw that memorandum?

A. Yes, sir, and I remembered right where it was that we talked.

Q. When had you inspected that memorandum prior to taking the witness-stand this morning?

A. I had it in my pocket ever since the 20th of the month.

Q. That is not answering my question. When did you inspect it?

A. Off and on while I have been in the courtroom here during this case.

Q. For how many days? A. Since the 20th.

(Testimony of V. C. Carey.)

Q. And notwithstanding those frequent inspections when you took the witness-stand you did not remember the conversation with Mr. White?

A. Well, for the simple reason I didn't know you were going to come to that subject at all.

Q. Didn't you know what you were expected to testify to when you took the witness-stand?

A. No, sir.

Q. Hadn't you communicated to the attorneys in this case what you expected to testify to?

A. No, sir.

Q. Nobody else? [637] A. No, sir.

Q. Mr. Creighton and nobody else?

A. No, sir.

Q. They put you on without knowing what you were going to testify to?

A. So far as I know, other than on that report. I gave them that report and I supposed that was what it would be.

Q. You didn't know that you were going to testify about this conversation with Mr. White?

A. I didn't go and study it up and commit it to memory.

Q. That is not the question. Did you know that you were going to testify about this conversation with Mr. White when you talked about the candle-power?

A. No, I didn't know.

Q. Who made this memorandum in writing on the back of this typewritten paper that I show you?

A. I did.

Q. When did you make that?

(Testimony of V. C. Carey.)

A. One day sitting over there in the courtroom after this case was started.

Mr. TRIPPET.—That is all.

Direct Examination (Resumed).

(By Mr. GOUDGE.)

Q. Did you ever have any conversation with Mr. White with reference to the condition of the surroundings of the test or the purpose of the test of the apparatus? A. Yes, at different times.

Q. State if you can anything that Mr. White said to you or in your presence giving the date and place and the names of the persons present, concerning the conditions under which the test was being made or was to be made, referring to the test of from March 10th to March 30th, 1910.

A. Well, I can answer that by telling everything that he [638] talked to me about.

Q. Well, having any reference to that subject, you may state it all.

A. Well, he talked to me like he was satisfied with everything that was going on. He was satisfied with the chutes—that is, before they were in operation. He was satisfied with the help he had there—perfectly satisfied with the help.

Q. (By the COURT.) What date was that, Mr. Carey? A. At different dates.

Q. At different times during the progress of the test?

A. No, just before the test, and there is one or two things that happened after the test started. Here is March 2d. Mr. White said to me it was very strange

(Testimony of V. C. Carey.)

that the corporation was going to hold him down to the exact letters in the contract. He said, "I think we will make a good showing, and the corporation will come over a little and it will be all right."

Q. (By Mr. GOUDGE.) Referring to that statement that you say was made on March 2d, do you recall where that was made?

A. About the corporation coming over a little?

Q. Yes.

A. Yes, I do. It was right in front of the boiler-house.

Q. What day?

A. Well, Mr. White was dressed up that day and did not have his overalls on. He was going over to the set. It was the day they were shut down to checker. That third day. It was about the third day that the test had been going on that I talked to him.

Q. Now, referring to this conversation on the 2d of March, that you just now spoke of, do you recall that or have you any memoranda concerning it?

A. Yes, sir.

Q. What, if anything, was said at that time?

A. Well, I asked Mr. White how he felt towards the set. [639] He said, "Oh, the set couldn't make the guarantee," but that he was going to do the best he could, and he thought the corporation would come over a little bit, and he told Mr. Millard the same thing.

Q. What date was that?

A. On the 2d of March.

(Testimony of V. C. Carey.)

Q. Did Mr. White ever make any statement to you about the condition of the brick?

A. Being used in the test?

Q. Being used or to be used.

A. Well, I remember one conversation that happened after the test was started. He wanted to take the bricks less than 10 per cent moisture and change them to wet ones, and he said he thought he could do better with them.

Q. To whom did he say that? A. To me.

Q. Can you say when that was and where it was?

A. No, I couldn't say. I haven't any memorandum of that. I recall that from the question you asked me. It was after the test started.

Cross-examination.

(By Mr. TRIPPET.)

Q. What makes you remember that it was after the test started?

A. Because there was an argument—I believe Mr. White used green bricks right from the press before the test started; real green ones; carted them right from the press, if I am not mistaken. I am most sure that that is the fact.

Q. And that makes you remember that the conversation with White was after the test was started?

A. Yes, because they did pretty good.

Q. And this conversation of March 2d, you say, was a conversation about how the set would operate during the test? [640] A. Yes, sir.

Q. The test was going on? A. Yes, sir.

Q. And he told you that the test was started on

(Testimony of V. C. Carey.)

March 2d, and that he couldn't make the guarantee?

A. Yes, sir.

Q. You are as certain about that as you are of the rest of your testimony?

Mr. GOUDGE.—We object to that, if the Court please?

The COURT.—I never thought very much of that question. I do not approve of the form of it if it is objected to.

Q. (By Mr. TRIPPET.) You are sure the test was going on when he told you he didn't think he could make the guarantee?

A. He told me that twice; two or three times.

Q. You and he were great friends? He was getting very confidential with you, wasn't he?

A. No, White and I didn't seem to jibe.

Q. I thought he told you all the confidences that he had. He opened up his heart to you.

A. Well, if he told me—if that is all he had—

Q. You are sure he told you that he was satisfied that he couldn't make the guarantee?

A. Yes, sir.

Q. Two or three times?

A. Yes, two or three times he told me he couldn't make the guarantee.

Q. When was the first time he told you that?

A. A few days before the test started.

Q. When was the second time?

A. I couldn't tell you exactly.

Q. You have got the memorandum there?

A. No, sir, just the one date. [641]

(Testimony of V. C. Carey.)

Q. You have got one date of that?

A. It is on there.

Q. And it was on March 2d?

A. I suppose so. I have forgotten it till I looked at it just now.

Q. And you think he told you that before you put it down on the paper? A. Yes, lots of times.

Q. Why didn't you put it down on the paper?

A. I wasn't down inspecting all that.

Q. He asked you what you were down there for, didn't he? A. Yes, sir.

Q. He asked you if you were down there as a detective? A. No, sir.

Q. Sure of that?

A. I don't remember it if he did.

Q. Didn't Mr. White refuse to talk to you when you first went down there, and continually refuse to talk to you because you were a detective, and tell you you were? A. No, Mr. White did talk to me.

Q. And did not refuse? A. No, sir.

Q. Talked to you right along? A. Yes, sir.

Q. Told you he could not make the guarantee?

A. Yes, sir. He talked to me quite often on the second floor level there.

Q. That is the kind of a level you mean when he was talking to you on the level?

A. No, I mean on the level of the set.

Q. You are not speaking about masonry?

A. No, I am not a mason. [642]

Q. When were you up on the floor of the set?

A. I was up there pretty near every coaling dur-

(Testimony of V. C. Carey.)

ing the test. There was one or two times, possibly, that I missed.

Q. How often did they coal?

A. Well, about every hour.

Q. And you were up there pretty near every hour?

A. Yes, sir.

Q. On the floor? Did Mr. White know what you were doing around there?

A. I noticed he lots of times would snub me a little bit, but I didn't take it the way you people think—because he thought I was a detective.

Q. What was he snubbing you about?

A. Because I didn't know anything about the gas business, and he thought it was funny that I was up there on that business because I didn't know anything about gas-making.

Q. I see you have a memorandum of the former report of candle-power too high and too low at times. When did you make that?

A. Is there a date on it?

Q. No, there don't appear to be. It is right there in the middle of the page.

A. I don't know. Sometime—this is before the final test. This was when he was working the experimental test there.

Q. I notice on this—is that February 19th—this page? A. Yes.

Q. Why have you got February 18th on top of that?

A. That has nothing to do with the way it is arranged. Those papers were all scattered around.

(Testimony of V. C. Carey.)

Q. And then you picked them up and fastened them together later on? A. Yes, sir.

Q. Just any way that they came? [643]

A. Well, yes, any way they came.

Q. You say you were not assigned to this job down there? A. No, sir.

Q. Now, I notice here, "Report to cover my detail at gas-works when the Western Gas Construction Company were making tests on No. 4 water-gas set." When did you write that? That appears to be the first thing you did.

A. This should be "details." I wasn't sent down there—

Q. It all relates to this water-gas set?

A. All my work down there?

Q. All this report. A. This was all on that.

Q. Well, this report relates to the detail work—the detail of that— A. Yes, sir.

Q. Then, you were assigned to do that prior to February 17, weren't you?

A. Not especially. Nothing special about it.
[644]

[**Testimony of John T. Creighton, for Plaintiff
(Recalled in Rebuttal).]**

JOHN T. CREIGHTON, recalled for plaintiff in rebuttal, testified as follows:

Direct Examination.

(By Mr. GOUDGE.)

Q. I believe in your former testimony you stated that you had operated water-gas sets?

A. Yes, sir.

(Testimony of John T. Creighton.)

Q. For how long a period does your experience extend in that business?

A. Between oil and water-gas sets, about three or four years.

Q. Taking the water-gas sets that you have operated, where has that been?

A. Los Angeles Gas & Electric Company and Los Angeles Gas and Electric Corporation.

Q. What kind of fuel have you used in that operation? A. Lamp-black carbon.

Q. In what form?

A. We have used it in every form that it comes. Partially loose, and brick form like this brick, bricked crude, part with tar mixed with it, and we have used it in every imaginable way, from mixing sawdust with it and pressing it and making gas of it. Every imaginable thing you can think of to use with it.

Q. Have you used it in lumps as taken from the drying-pit? A. Yes.

Q. As I understand you to say, you have also used it in the loose form? [645] A. Yes.

Q. Taking the operation of manufacturing gas from carbon in lumps in crude lumps, or in loose form, state how the carbon is handled, how it is put in the generator and what becomes of it in the generator.

A. In the loose form we experimented with it a long time to see if we could not use it just in the loose, fluffy form, and we found that it packed too tight that way. So then we let it stack up in big

(Testimony of John T. Creighton.)

mounds, and we mined it just the same as you would coal by undermining it and letting the big lumps fall down and crush, and took the biggest ones—as large as a man could lift—and wheel them right up onto the working floor and shovel it right into the generator. We did that for two or three or four years, probably, before we bricked any.

Q. Speaking of the brick form, what kind of brick was it in shape or size?

A. It was in the shape and size of a fire-brick. It is a little larger than a building brick. It is the fire-brick size.

Q. How does it compare with this sample of brick which was wrapped in paper, now marked Defendant's Exhibit "I," identified by Mr. White?

A. That is the same class of brick we first made and are making now on the press that that was made.

Q. What kind of a press were those bricks—speaking of your experience with bricks—what kind of a press were they made in?

A. They were made in an ordinary brick press, a fire-brick press from one of the fire-brick manufacturers in this city. It was a press taken from one of those houses, I believe. [646]

Q. When did you install such a press in your works?

A. I believe it was in 1903, I think—'3 or '4, '2 or '3 or '4; somewhere along about that.

Q. How many such presses have you had?

A. That was the only type of that kind, with a two-mould press. We had another that was a four-

('Testimony of John T. Creighton.)

mould press that we got in about 1906 or '7, I think. That was a four-mould press, pretty much the same type. It might have been a little stronger press. It was in four moulds. You could make four bricks at a time. Those dies were changeable. You could take those dies out and make briquets—little bits of ones—but it would be the same cubical contents of the press. The press would be about the same capacity. And we tried for a long time to see how hard we could make them, and we found that we broke the presses all to pieces by trying to make them hard out of the dry stuff.

Q. Speaking of the four-mould press, is that the press that you had in 1910, at the time this test was made with the No. 4 set? A. Yes, sir.

Q. How long previous to that time had you had the same press? A. I think it was in 1906 or '7.

Q. In what press were the bricks made that were used in this water-set No. 4?

A. They were mostly made on the No. 2 press—the four-mould press.

Q. At that time did you have the two-mould press and the four-mould press? A. Yes, sir.

Q. Both in use?

A. Yes, sir. This is a brick off of the two-mould press [647] I can tell by the dies. There was just the least little difference in the shape. Unless you casually observed it you couldn't tell.

Q. Do you know anything of the stack of brick that there was on hand in the company's yard at the time the final test of the Western Gas Construction

(Testimony of John T. Creighton.)

Company's set was begun? A. Yes, sir.

Q. Where was the stock of brick located?

A. Directly across the street from the set.

Q. How much brick was there there, about?

A. Approximately about 3,000 tons.

Q. How long prior to the commencement of this test on March 10th has that brick, comprising this 3,000 tons stock been made?

A. A good many of those brick have been made probably a year before, because in the test in July, I think it was, the year previous, we kiln-dried a lot of brick. Then we had orders to get 3,000 tons on stock, and just as the test started we found out some of them were not quite down to 10 per cent, and after that test—and for that test we started kiln-drying and we kiln-dried a lot of brick then.

Q. That was when?

A. In July. I think it was in July, 1909, I think—'8 or '9. In it was 1908, I think. It was the test just previous to this last one.

Q. The test before this final test? The test the summer before this final test? Are you speaking of the run or test that was made in the summer before that?

A. It was when Mr. Cleary was out here. It was [648] 1908, I think it was. It might have been in 1909. But I forgot the date exactly.

Q. At that run of the set was there any kiln-dried brick used? A. Yes, sir.

Q. You said just now that at a previous run of this set or this set before it was altered, that you had

(Testimony of John T. Creighton.)

orders to accumulate a stock of 3,000 ton of brick?

A. Yes, sir.

Q. Can you say when that was when you were given this order to accumulate 3,000 tons?

A. I believe it is in some of the files that you have on the table.

Q. And you are not able to tell the year or date?

A. Not offhand; there is a letter in those files in the way of a report to the superintendent, that he gave me orders to get that stock of brick and see that they were down to less than 10 per cent, and I wrote him a letter as to the progress of that work.

Q. And that will fix the date? A. Yes, sir.

Q. At any rate, will you state how recently any of this stock of brick that was on hand at the time this final test was begun, from which brick were used in the final test—how recently any of that brick had been manufactured?

A. I think it was some six or eight months, and some of it was probably a year.

Q. How did that stock of brick of about 3,000 tons that was on hand when the final test began, compare in quality and appearance and any other character with this sample brick? [649]

A. That is a good average sample of carbon brick that we used then and that we manufactured.

Q. And which was furnished to this set?

A. Yes, sir, that was furnished to this set.

Q. Now, again, how does that brick compare to the bricks that you were accustomed to use in the operation of your water-gas set in the gas-works?

(Testimony of John T. Creighton.)

A. It is a fair sample. Probably a little drier. Sometimes we have them that dry, but not to a great extent. They will naturally dry themselves if they happen to get into the pile where the sun will strike them readily."

Q. Regardless of dryness, how does it compare in other character, such as density, these surface cracks and shape?

A. It is a very good average sample of the brick that we made. We call that a good brick.

Q. Now, handling brick in your water-gas set, do you find that the brick in their progress to the generator are broken, ever? A. Yes, sir.

Q. How did you ordinarily feed or deliver the brick into your generator?

A. We dumped them—loaded them into the wagon by throwing them into the wagon by hand or pitching them. Sometimes we used a pitch-fork. Then they were handled the same way out of the wagon onto wheel-barrows, and wheeled along on an iron floor, and then dumped over the same as you would coal, and then shoveled into the generator when it was time to coal up.

Q. Did you ever have occasion to inspect or observe the fires in your generators of water-gas sets when they were using this brick or carbon fuel?

A. Yes, sir. [650]

Q. Do you know what the appearance of the fire ordinarily is? A. Yes, sir.

Q. Did you ever see the fire in this set during the test? A. Yes, sir.

(Testimony of John T. Creighton.)

Q. How did the fire in this set No. 4, during the final test, in appearance and character generally compare with the fires in your water-gas set when you were using the same fuel?

A. I would say it was a good average carbon brick fire.

Q. Now, you have some experience with the making of these bricks from the loose carbon?

A. Yes, sir. I had pretty near all the experience there ever was on it, from the first time they ever tried to make them till the present day.

Q. Do you know from experience what difference it makes in the manufacture of these bricks from the loose carbon, what the moisture conditions of loose carbon are?

A. Yes, sir. I was two or three years finding that out.

Q. By what means in 1910, if by any means, did you dry the loose carbon before breaking it?

A. We used a Cummer drier to dry the carbon down to whatever moisture is feasible to brick the brick.

Q. Well, the Cummer drier dried the carbon down to any percentage that you desired?

A. Not satisfactorily. It would not. It will dry them dry, but not practically.

Q. Practically how dry will the Cummer drier make the loose carbon?

A. About 15 to 20 per cent.

Q. (By the COURT.) That is, leave 15 or 20 per cent moisture in them? [651]

(Testimony of John T. Creighton.)

A. Yes, sir; leave 15 or 20 per cent in the carbon as it comes out. If you go below that it may explode just like gunpowder. When it gets drier than that, down to say 5 or 10 per cent, you can't notice the moisture to any great extent, and the moisture will vary so great below 15 per cent without observing it that at any time after it is below 15 per cent with the 1,000 or 1,200 degrees temperature surrounding it, it is just liable to explode like the gas does. It had done it twice in our experience in the test of the machine when it was first installed.

Q. (By Mr. GOUDGE.) Now, after drying the carbon to any given or different percentages of moisture, what has been your experience with reference to the feasibility of making brick from the loose carbon, the loose carbon itself having different degrees of moisture content? State how that affects the brick-making.

A. In the brick-making part of it, they were making brick lower than 15 per cent moisture, but it breaks the presses. It busts the wheels and busts the dies. We had it break a four-inch shaft in two two or three times, on the very press that made that brick, trying to make it drier than 15 per cent moisture. It would stall the press. We had an eight-inch belt on it and put a 12-inch belt on it and ran the press to its final capacity, and it stripped the gears sometimes of the cogwheel. We then tried to see if we couldn't get a stronger press, and while we were doing that we ran this press to its limit of 15 or 20 per cent moisture and tried to keep it that way so as not to

(Testimony of John T. Creighton.)

break the press down. We always thought it would be better if we could make brick a little drier, and we gave the firm that makes these briquet presses an open order to make us a press that was strong enough and big enough, within reasonable limits—to [652] make us a press that was strong enough to press this stuff to a lower degree of moisture than what we had theretofore been able to do.

Q. Did you get any other press?

A. Yes, I was just coming to that—to state about the press that we got and explain the experience we had with it. We got a press that was built enormously strong, and we tried to brick it at a lower percentage of moisture than 15 per cent, and we broke that all to pieces.

Q. By bricking it to a moisture lower than 15 per cent, you refer to the powdered material.

A. Yes, sir.

Q. State from the experience you have gained in the operation of these presses what is the least moisture content of powdered carbon before bricking that can be used successfully in the bricking press.

A. Between 15 and 20 per cent.

Q. I want to ask your attention to these surface cracks that are particularly apparent on the sides of this brick exhibit "L"?

A. I have seen millions of those cracks.

Q. Running longitudinally along the brick?

A. Yes, sir.

Q. At what time in the manufacture of the brick do those cracks appear or develop?

(Testimony of John T. Creighton.)

A. After the stuff is put in the dies—it is fed in automatically into the dies—the dies are about two and a half times the depth of that brick, originally. They are probably that deep. And that is filled with loose stuff and the dies come down and squeeze that down, and there is some air naturally mixed with it, and the upper dies and the bottom dies take that air with it. It is pressed to such an enormous pressure that the air is compressed, and when the top dies come off again, and the bottom dies push that out, it is compressed [653] in there so tight with the compressed air—and the compressed air leaves those fissures. It mostly gets in there when you try to get them too dry. That is how we discovered the moisture necessary to brick them. That is what the men in the manufacture of the brick are governed by. We try to keep the moisture of the carbon to that extent so as to have them down to the minimum of compressed air.

Q. Is the existence of such cracks as you have pointed out on this exhibit characteristic and common in these bricks made in this brick press?

A. Yes, sir.

Q. I understand you as soon as the brick leaves the press it shows these cracks? A. Yes, sir.

Q. Can you say whether or not these cracks or such cracks as this or any of them are closed by kiln-drying? A. No, sir, they are not.

Q. No air-dried or sun-dried bricks show the same cracks? A. Sometimes.

Q. Did you observe the bricks that were used by

(Testimony of John T. Creighton.)

The Western Gas Construction Company during its final test as to their density or tensile strength and their behavior under handling? A. Yes, sir.

Q. State whether or not those brick were different in that respect or either of those respects from the common run of bricks that were commonly used in your water-gas set?

A. It was commonly known that it was as good or better brick than we ever used or ever tried to use, and the trouble that we went to to get those bricks and have them [654] fall below that moisture—it was better brick than we had ever used.

Q. Did you ever make or see made at the Los Angeles Gas and Electric Corporation's works any better or more substantial bricks than these from which the bricks used in this set were taken?

A. No, sir.

Q. From your experience in the operation of bricking-presses in the manufacture of carbon brick, will you state whether or not it is practicable or possible to make any better or stronger brick than these were?

A. It is not.

Q. Do you recall the condition of the weather during and prior to this final test, March, 1910?

A. I recall the weather in January very remarkably, because I had orders then to cover the pile of brick with some covering to protect them from the rain, and we did cover them at that time.

Q. Do you know, then, whether it was or was not raining in that month of January?

A. Yes, sir; it was raining in January. I also

(Testimony of John T. Creighton.)

recall in February while we were still trying to keep the brick dry that we had a few rains there that kept putting our fires out as fast as we lighted them to kiln-dry them.

Q. Do you know from your experience in the handling of these carbon bricks, whether or not in ordinary weather they will absorb moisture?

A. They will, to some extent.

Q. Now, you know that the bricks furnished to The Western Gas Construction Company during this test were kiln-dried or dried by means of fire?

A. Yes, sir. [655]

Q. By what other method was it possible to dry those bricks or reduce them below ten per cent moisture in that test at that time?

A. I don't know of anything else that would have dried that pile of bricks that was above 10 per cent moisture at that particular time.

Q. Do you know how such brick as these behave when they are thrown into the fuel bed of the water-gas generator, as to their retaining their form or disintegrating? A. Yes, sir.

Q. What happens to them?

A. When they first come in contact with the heat they remain in the same form and shape until they are pretty near heated through. When they get heated clear through until they become incandescent, they are very soft, very soft and any pressure on them, great pressure on them, will squash them down at that particular time.

Q. Did you see this test during the final test?

(Testimony of John T. Creighton.)

A. Yes, sir.

Q. Do you know what the effect or in what manner the overloading or overcharging of the carbureter of the water-gas set with oil effects the operation of the set, or in what manner it is observed? A. Yes, sir.

Q. How?

A. If the carbureter is overcharged with oil to any great extent you can notice it by the residue flowing out with the water in the form of oil, lighter oil.

Q. Where does that water flow from?

A. From the seal where the gas is being washed.

Q. Did you observe the overflow from the seal of this set during the final test at any time? [656]

A. Yes, sir.

Q. How often and when?

A. I would casually go up on the operating floor and ask how they were getting along. That is the point that the gasmaker always goes to, to see how the set is operating—where that comes out—and I would naturally go back there first. I could tell whether the machine was overloaded or underloaded, or whether the candle-power can be regulated any more. In fact, that is the key of the machine, to see how it is balanced.

Q. And when you went there what would you see?

A. Sometimes I would see oil there and sometimes I would not and it would be normal.

Q. Did you have any talk with anyone connected with the Western Gas Construction Company about it? A. Yes, sir.

Q. With whom? A. Mr. White.

(Testimony of John T. Creighton.)

Q. State what the conversation was.

A. "I see you are running oil out of your seal-pot." And he would say, "I don't think it is very much, do you"? And he often asked my opinion about things like that. And I would say, "I don't know what you think about it, but I think it is crowding things."

Q. Can you state about when that was in the progress of the final test?

A. It was more towards the last six or seven days of the test, I guess.

Q. Have you had any opportunity of comparison of sun-dried brick and kiln-dried brick in use for fuel in a water-gas set? A. Yes, sir. [657]

Q. Have you used both kinds? A. Yes, sir.

Q. What, if any, difference is there between those two kinds of bricks in practical use?

A. I don't know as there is any difference, so long as the brick is dry. The moisture is the only thing.

Q. (By the COURT.) Do the two presses leave the brick in the same condition after the drying has been completed?

A. I don't think an expert could tell the difference, your Honor.

Q. If you are shown two bricks or two lots of bricks, one of which is sun-dried and the other kiln-dried, from your experience with these bricks and handling them, could you pick out one from the other? A. I don't believe I could.

Q. Do you know of any way of distinguishing them?

A. I know that I couldn't. It would be a guess if I did.

(Testimony of John T. Creighton.)

Q. Upon what does the capacity of a water-gas set depend? What indicates or designates its capacity, taking the machine itself?

A. In a water-gas set it is recognized that the grate area of the generator—that is the only recognition they give with some, and with others, it is the cross-section of the carbureter as well as the grate area—the cross-section area of the carbureter as well as the grate area of the generator.

Q. And the grate area of the generator is the same thing as the horizontal cross-section inside of the generator? A. Yes, sir.

Q. Do you know from experience whether the shape of the carbureter and the manner in which the material in the [658] carbureter—in the interior of the carbureter—is arranged and, particularly, the proportion between the height and diameter have anything to do with the capacity of the carbureter?

A. Yes, it has all to do.

Q. Why is that?

A. In using crude oils for the enrichment of water-gas, unless you have a large cross-section area to take the gases as they are generated in the generator and that are coming up and passing down through the carbureter or up through the carbureter—in using the California oils—unless you have got that grate area, the California oils deposit carbon on the checker work, to the extent of the capacity of the machine. That has got to be large enough to admit the passage of those gases that come from the generator, as well as the blast when you are heating.

(Testimony of John T. Creighton.)

Q. That is, I understand you, that with California oil it is necessary that the carbureters have a certain diameter or cross-section area? A. Yes, sir.

Q. And that cannot be compensated for by having the same surface in the carbureter and making the carbureter higher?

A. No, sir. There is something like 25,000 brick in the carbureter and superheater, and the ratio there, in the small area, is trying to make too much volume in the small area in a given length of time.

Q. What is your opinion concerning the design of the carbureter and superheater in this particular set, as to the ratio that the diameter bears to the height of those two shells, whether for California oils, those two dimensions are properly proportioned or not?

A. I will say the carbureter is about 50 per cent too small in area. [659]

Q. Cross-section area?

A. Cross-section area of the carbureter. About 50 per cent too narrow.

Q. What effect does that have or did it have on the capacity of the carbureter in this set?

A. It diminishes it to that extent after it has operated one or two days or three or four. The building of the generator part is all right after it was enlarged, but the carbureter is not enlarged to take care of that part of it. They had to handle all the extra gases just the same and [660] some more too that it made itself.

Q. Did you observe the set at all before the

(Testimony of John T. Creighton.)

changes were made and converting it into twin generators? A. Yes, sir.

Q. Did you observe whether or not the carbureter and superheater were changed also at the time the change in the generator was made?

A. Was the carbureter changed?

Q. The carbureter and superheater. Were they changed?

A. No, sir. Nothing at all done to them.

Q. Then, as it stood during the final test, taking the carbureter and superheater into account, did it have a capacity of 2,000,000 cubic feet a day of finished gas for, say, in a run of 20 consecutive days, in your opinion? A. No, sir.

Q. Do you know anything about the carrying over of fine dust or fine material into the carbureter in this set? Do you know whether that happened or not?

A. Yes, sir.

Q. Does such a thing as that commonly happen in the operation of water-gas sets with carbon fuel?

A. Yes, sir.

Q. Do you know whether any of this dust or fine material reached the checker brick of the carbureter or whether it was arrested in this pit or chamber shown here?

A. It was mostly arrested—most all of it was arrested in that chamber there.

Q. In the operation of the water-gas set by the use of carbon fuel, does any material ordinarily fall into the ash-pit below the grate? A. Yes, sir. [661]

Q. What is that?

(Testimony of John T. Creighton.)

A. In cleaning the fire the unconsumed carbon will fall through as you poke the fire, running the great big slice-bars in there. We want to get it out. It is dead. We brighten up the fire just the same as you poke an ordinary fire.

Q. What other material is in the ash-pit?

A. This particular carbon or lamp-black we use, we don't get anything else but those small particles that go down to the bottom of the fires. We want to remove them to clear up the fires. Otherwise there is only a little bit of clinker that happens to be in the carbon from piling it around.

Q. Have you any experience with the effect on the productive capacity or production capacity of a gas-set of cleaning it up and starting it fresh or anew?

A. Yes, sir.

Q. State whether or not the set shows any different capacity when first started from that which develops later after it is run.

A. Yes, sir; when the generators first start up we gradually warm up to a certain heat, and we take sometimes three or four or five days or six. It is according to the size of the amount of brick that we can bring up to heat. Then the generator is primed gradually until what we call, in the gas practice, it is ready for its load. And when it is ready for its load, the first day after it takes its load is usually a greater day than any effort you can make on the set till you start over again with a clean generator. And the way we rate the capacity is the average make that it will make per day for the length of time that it

(Testimony of John T. Creighton.)

runs. Not on any one day. The capacity is the average it will make for any period. [662]

Q. You recall when this set was started on its final test on March 10, 1910? A. Yes, sir.

Q. Do you know how long before that it had been fired up?

A. I believe it had been fired up—not unless I refer to notes, I couldn't tell.

Q. Was it one day or several days?

A. Oh, it had been fired up for a month or two. It was primed about a week before this final test.

Q. Now, assuming that as shown by the evidence, this set was primed a week before and brought up to its heat and reached the proper heat on the morning of March 10th, and was run on that day, and produced 2,700,000 cubic feet of gas in that first twenty-four hours, does that production indicate the average capacity of the machine?

A. Not unless the machine was balanced, it would not. And then it wouldn't only just for that twenty-four hours. It would not indicate the capacity of the machine as a generating unit.

Q. What is the capacity of the water-gas in feet per day that you had in operation in March, 1910?

A. The individual generators?

Q. Yes, or individual sets.

A. We had two to the capacity of about 350,000 cubic feet a day. That is, an average of 350,000 feet for an indefinite period.

Q. And any others?

A. There is two other ones that have a rated capa-

(Testimony of John T. Creighton.)
city of 250,000 cubic feet a day.

Q. In stating that capacity or estimating the capacity, what account do you take of any periodical burning out? [663]

A. That is not counted at all. The rated capacity is rated for a month or two months. In our particular line it is for a year, day in and day out—for eleven months. The average capacity for eleven months would be 350,000 feet a day.

Q. Dividing the total product during the eleven months by the number of days in that number of months? A. Yes, sir.

Q. That is how you arrive at the capacity of the machine?

A. Yes, what we can depend upon for the capacity of the machine.

Q. Now, you spoke of the eleven month period. What, if any, reason is there for adopting the eleven months rather than twelve months?

A. There is one month in the year that we kill the machine entirely—take the fires out and go in and make an annual repair to the brick work.

Q. So the eleven month period is a period of continuous operation? A. Yes, sir.

Q. What, if any, time during that period of eleven months do you close the machine or interrupt the continuous process of gas-making?

A. We burn out the machine at different periods. We try to run it on the schedule so that we know that the machines are burned out. We use a fixed period so that we know then from the management

(Testimony of John T. Creighton.)

of the machines that they are actually getting burned out and never will become clogged, unknown to the manager.

Q. (By the COURT.) What is the length of those periods?

A. At the present time it is about half a day in seven. [664] Sometimes it goes as much as a day in seven. It depends on the time of the year, between winter and summer, that we want the machines to run.

Q. (By Mr. GOUDGE.) Did you notice these particular brick that were used in this set as they were delivered into the generator? A. Yes, sir.

Q. State to what extent, if at all, the brick broke up on their way to the generator in the course of delivery. In what condition the brick actually reached the inside of the generator.

A. They were dumped into the generator under conditions that I would term very favorable. They all come down bowling into the chute and rushed into the generator, and there was what we thought in the operation of our practice as ideal conditions.

Q. Did the bricks break to any extent while they were being handled and before they got into the generator? A. They broke some.

Q. Was that breaking up greater or less in extent in your experience in handling of bricks in other water-gas sets?

A. I think it was a little better. It was above the average. That is, the breaking was less than the average. And handling them as a whole, as fuel it

(Testimony of John T. Creighton.)

was way above the average of what we had in handling that class of fuel previous to this time.

Q. You say you observed this fuel after it came into this generator?

A. Just as it went in. And we have often looked at the fires through the charging hole afterwards.

[665]

Q. And was the condition of the fuel at the time it was delivered on the fire, and the condition of the fuel as you observed it actually in the fire in this generator, better or worse than the conditions of the fuel delivered into your water-gas sets in your experience?

A. It was away above the average. Away above the average.

Q. In each case, either in the delivery or after?

A. All the way through.

Q. Besides the conversation you speak of with Mr. White with reference to oil showing in the seal-pot, indicating overloading of the carbureter, do you recall any other conversations you had with Mr. White during the operations of the test concerning the fuel, or concerning any matter connected with the operations of this set?

A. Mr. White often complained that he didn't think the fuel was any good. I told Mr. White, "That is the fuel we have got to make the gas out of, and it is the fuel we always have made gas out of, and it is a better class of fuel than we ever made gas out of. And if you are having any trouble with the generator you had better look to some other causes." And he

(Testimony of John T. Creighton.)

asked me many and many times what did I think it was, that he couldn't make it. And I told him his carbureter was too small for the amount of oil that he was trying to enrich the gas with.

Q. Did Mr. White during this test tell you whether or not he had any previous experience with this carbon fuel?

A. He never had. He said he would like for me to give him any pointers I could, and to help him along as much as I could; that I had had a great deal of experience in that class of fuel, using it for water-gas.

Q. Did he say to you at any time during this test or [666] prior to the test that he had not had experience with this kind of fuel?

A. He said he had not had any experience with it at all.

Q. Now, prior to the beginning of the final test, do you recall that there was some other run made with this machine in January and February? A. Yes.

Q. Was Mr. White here then? A. Yes.

Q. Prior to the beginning of this final test, did Mr. White ever complain to you about kiln-drying the brick? A. No, sir.

Q. Do you know whether he knew that they were being kiln-dried?

A. He knew it. He often made the remark that the bricks were fine, till he commenced to fall down on his gas-make, and then he blamed the fuel.

Q. Do you know what the moisture content in this brick, this 3,000 tons, that you had accumulated for this test, was before the brick were kiln-dried in January, 1910?

(Testimony of John T. Creighton.)

A. I knew what it was quite a while before, but just how long, I don't know. We went all over the fire and had it tested, and took samples from all different parts of the piles. We took hundreds of bricks out and had them tested, and we found that all we had tested was less than ten per cent, and we thought we were all right then till the rain came on, and then we found out that we would have to haul that whole pile all over again.

Q. You refer to the brick from this same stock?

A. Yes, sir.

Q. Prior to the run, you tested them and they ran under ten per cent moisture? A. Yes, sir. [667]

Q. When was the next time you tested the same brick?

A. I would judge it was about six weeks or a month before the test.

Q. In the meantime, it had rained?

A. Constantly. It rained a terrible lot.

Q. Then what was the moisture content?

A. It was over ten per cent, but what it was I don't remember.

Q. And you have already stated that you don't know any other way of drying them except kiln-drying?

A. No, we went to work night and day, and put big crowds of men on, and hauled them all over again.

Q. Have you any knowledge or information as to the expense of drying bricks by kiln-drying?

A. It cost us—I don't know just the exact amount, but I had to turn in an estimate of what it would cost,

(Testimony of John T. Creighton.)

and, besides, what help we could use at the works. We turned in for something like a thousand dollars besides, and hauled that pile over, and there was probably five hundred dollars spent on labor at the works, night and day, to haul that pile over as quick as possible, and to keep it dry while it was raining.

Q. Have these bricks such as you have been talking of—brick in this pile and such as the brick here exhibited—or this lamp-black—has it any market value for commercial purposes?

A. Not to any great extent. We have sold some, but not to a remarkable extent, judging from the amount that we make.

Q. Do you know what is the market value of lamp-black in this city, or was in 1910?

A. No, not just exactly. [668]

Cross-examination.

(By Mr. CHAPMAN.)

Q. Do I understand you to say you have had three or four years' experience as a gas operator—as an actual gas operator, that is, it has been since you have been in the company's employ here? A. Yes, sir.

Q. What other water-gas apparatus have you operated besides these they have in these works?

A. None.

Q. Are you a gas engineer?

A. No, sir; not a graduate mechanical engineer. I am a practical gas engineer.

Q. Have you ever studied mechanical engineering in any school? A. Only in the primary school.

Q. Never went to any college where the subject was

(Testimony of John T. Creighton.)

taught? A. No, sir.

Q. And your knowledge of the subject is confined to what you have learned since you have been in the employ of the company during the last three or four years? A. Partly so, yes.

Q. What other experience have you had in the operation of water-gas apparatus?

A. Before I went to work here?

Q. None whatever.

Q. What do you mean by partly?

A. You asked if I learned all I know about water-gas manufacture in the three or four years I operated here and I said no, not all I know. I didn't learn it all right here. I meant partly that I had got information from the text-books and so forth. [669]

Q. Did you ever design a water-gas apparatus?

A. Yes, sir.

Q. For what?

A. For the manufacture of water-gas.

Q. For what company?

A. The Los Angeles Gas and Electric Corporation.

Q. Did you build any of these water-gas sets that they have down there now?

A. I didn't build them. I built them over. I remodeled them.

Q. You designed the remodeling of the apparatus?

A. Yes, sir.

Q. Upon what do you base your opinion that the carbureter in this apparatus is not sufficient in size to make the capacity of 2,000,000 feet of gas per day?

A. From the experience that I have had with Cali-

(Testimony of John T. Creighton.)

fornia oils with an asphaltum base, and the way it will carbonize and leave dust deposit on the checker brick while we are trying to burn it, to put it into a gas—as we call it, burned up—to break it up.

Q. You base your judgment upon what you have seen in actual experience at this plant?

A. Yes, sir.

Q. And upon that experience you advance the idea that the cubic contents of the apparatus has nothing to do with it, but it depends on the diameter?

A. I didn't mention the cubic contents having nothing to do with it, but the cross-section has more. The same given cubic contents, if it was arranged differently—there is 25,000 brick in there. If they had a little greater cross-section area, you would not have the trouble with the [670] thing choking to any great extent. There is enough heating surface there, but it would choke up in such a narrow space.

Q. The engineer who designed that apparatus was all right in size and cubic contents, but he didn't know enough to flatten it down?

A. I don't know whether he didn't know enough or not.

Q. But at any rate, that is his mistake?

A. I would judge that is the error in that machine for lamp-black fuel and California crude oil.

Q. You base your judgment in that regard on what you have observed and learned in your employment at this plant? A. Yes.

Q. You say in the course of your experiments with this fuel, you undertook to use the lamp-black in its

(Testimony of John T. Creighton.)

loose form? A. Yes, sir.

Q. And you abandoned that because it packed the fire too much? A. Yes, sir.

Q. What difference did that make—packing the fire?

A. It would not work as good as if it was not packed.

Q. You mean that you used it in those experiments in the loose powdered form?

A. Yes, sir; altogether loose, with no lumps whatever.

Q. And the packing of the fire was objectionable and you passed that up? A. Yes, sir.

Q. In other words, it is a necessity that an open fire be maintained in order to keep up your heat.

A. As much as it is practical to do it.

Q. Then, you tried it with lumps—mined them out of your big deposits that you piled up in the yard?

A. Yes, sir. [671]

Q. And abandoned that?

A. Partly abandoned it. We still do it sometimes yet.

Q. Don't you use bricks altogether now?

A. No, sir; not bricks altogether. We sometimes use lumps.

Q. You say you are not fixed to do that?

A. No, I said it is not the fixed rule. If we have a lot of carbon on hand, we use it in lumps. It depends on how the conditions are.

Q. But you practically use bricks altogether now?

A. Just at the present time, yes.

(Testimony of John T. Creighton.)

Q. And that is because they make a much better fire for the manufacture of gas?

A. One reason is we can dry the bricks better than the lumps, and there isn't as much moisture in the bricks as in the lumps. It is mostly on account of the moisture that we do it. Otherwise we could use the lumps. But unless you get the lumps in even shape it would not dry evenly. If you have a lump that big and another that big your moisture would not run the same. That is the only reason. Otherwise, if we could dry it—it costs us too much to break it—we would use it that way.

Q. These lumps have to stand for a certain length of time to solidify, don't they?

A. No, we used to just plow it up. We would roll it down and plow it up and then cart them right away. We have tried letting them stand to dry, but it wouldn't penetrate a great big lump to any extent. You would have a terrible area of ground to cover with them.

Q. You say you made strenuous and frequent efforts to procure a machine strong enough to brick this stuff dry or, [672] I believe, with a lower per cent of moisture? A. Yes, sir.

Q. And you found it impracticable because it required more power than your machine would stand?

A. Yes, sir.

Q. Why were you so anxious to brick it with less than 15 per cent moisture, or 20?

A. We thought we could make a brick that would be more durable for handling if it was bricked with

(Testimony of John T. Creighton.)

less moisture in it. And we thought that brick made with less moisture in it, it would not have to lay around. It costs money to stack this stuff up, thousand and thousands of dollars, waiting to dry out.

Q. And you knew that drying out the moisture after it was bricked had a bad effect on the substantiality of the brick? A. No, sir.

Q. You think driving the moisture out after it is bricked don't hurt it? A. No, sir.

Q. Does it improve it?

A. I personally think so myself, and there is a good many people down there think so.

Q. Do you know what the specific gravity of carbon is?

A. I don't know exactly. Pretty close to water.

Q. Don't you know the weight of carbon is nearly twice that of water? A. No, sir.

Q. Don't you know the specific gravity of carbon is between one and a half and two? A. No, sir.

Q. Did you ever look it up or ask anybody?

A. Yes, I looked it up. [673]

Q. And you think carbon weighs about the same as water?

A. Yes, sir; that is, this lamp-black that we get.

Q. Do you know when you have 20 per cent water in a brick you have at least 20 per cent of the space of that brick occupied by water? A. Yes, sir.

Q. And if the specific gravity of carbon is greater than that of water, then if you have 20 per cent by weight of water it occupies more than 20 per cent of the volume of the brick?

(Testimony of John T. Creighton.)

A. It would occupy the space after you drive off the water—it would occupy the space that held the water. The space that the water held would be void to some extent.

Q. When you drive the water out of the brick, what have you in its place?

A. A void between the small molecules of carbon.

Q. When you drive the water out and have voids in its place, you think the brick is as good as before?

A. Yes, sir.

Q. And you think a brick with voids in it of 20 or 30 per cent, depending on the quantity of water after it has been driven out, is just as good as one that has not those voids in it, by reason of having been bricked with less water? A. Yes, sir.

Q. You think the voids have tendency to harden the brick in some way? A. In some way, yes.

Q. Your theory is the more porous a brick is the stronger it is?

A. No, sir. There is a limitation to the porousness of anything. At the same time, you get two things together [674] that will hold, and you can't pull them apart, although there may have been something there before.

Q. And the voids then cut no figure?

A. They wouldn't cut any figure in the physical strength of the carbon brick or briquet.

Q. This material has in it a binder, has it not?

A. Not to any great extent. The water is the binder that we depend upon, the moisture.

Q. And if you drive the moisture out by air-dry-

(Testimony of John T. Creighton.)

ing, then that binds the brick?

A. Just exactly what it is I am not able to state, only from the experience of physically testing the thing and using judgment on them.

Q. Some unseen mysterious power still causes the brick to adhere?

A. I don't think it is mysterious. It is known to some extent. It is a fact there, and it is a great deal like cement. When you once cement and mould a block of it, the water has to dry out just the same, but the cement gets harder. Mud will do the same thing. If you get a mud ball, and the mud is all pliable, yet you can put it in the sun and let it dry, and if it is adobe mud, you can throw it against the wall and it won't break. But you couldn't do it before that, to make that stick together. It is just as mysterious.

Q. It is not because of any sticky or adhesive substance in the mud?

A. I don't think so; no, sir. I think it is just combining the parts of earth together.

Q. You know there is a percentage of anywhere from 12 to 15 or 16 per cent of hydro-carbons, or tar, or tarry substance in this—

A. Not in all of it—that varies sometimes. [675]

Q. But in all the material there is more or less of this tarry substance? A. There is; yes.

Q. And that tarry substance you think has nothing to do with the binding properties of the material?

A. Absolutely none, any more than, for illustration, when it snows and it is freezing, you try to

(Testimony of John T. Creighton.)

make a hard snowball out of light snow and you can't make one. If the weather is damp you can make as hard a snowball as you want, and it is the same material.

Q. So you make fires and drive out the volatile hydro-carbon matters, and not affect them in any way. A. No, sir.

Q. Could you do that with a snow-ball or do you think the same principle would apply?

A. No. They are two different things. The material is different. I was only illustrating, as far as the moisture of the binder is concerned. That is all I was trying to illustrate. In brick manufacture of any description, the moisture enters into the question. They temper the clay with water in all brick manufactories of any description, mostly, and we found that we had to follow pretty much in the same science.

Q. Why did you make such a tremendous effort to brick it dry?

A. To save the enormous cost of stacking it up to dry if we could get the water out before. It covers a great space.

Q. Doesn't it cost you money to dry it now?

A. Not nearly so much as the value of the ground and the rehandling it. [676]

Q. You have to handle the apparatus?

A. In the mechanical drier it is handled in the machine in a small space.

Q. And you have to have fires to dry the moisture out? A. Just the same.

(Testimony of John T. Creighton.)

Q. And after it comes out you have to pile it up?

A. We could use it immediately.

Q. You have got thousands and thousands of tons of bricks lying out in that space across the street now, have you not? A. Yes, sir.

Q. It is all open and the rain falls on it?

A. Yes, sir; we have some of it under a shed. In the summer time, we take it out of there, and in the winter time we try to keep them under the shed.

Q. The greater part is open—

A. Which is because the greater part of our sunshine is the best part of it.

Q. How long do you have to dry them?

A. It depends on the moisture. Some made with 15 or 16 or 17, and some made of 20, it takes two or three months to dry them down. A good deal depends on the humidity of the weather.

Q. When did you form the opinion that this set could not make 2,000,000 feet of gas per day on account of the carbureter being improperly arranged?

A. All the time that it was there.

Q. Didn't you testify when you were on the stand the last time that you might have told Mr. White that you thought you would be making two and a half million feet with it in a month if it was accepted?

A. No, sir. [677]

Q. You didn't say that you might have said that?

A. No, sir.

Q. What did you say?

A. I said Mr. Pederson, as I found out afterwards, made that remark to me, stating that he hoped "You

(Testimony of John T. Creighton.)

fellows will do it after we get out of here."

Q. And you said, "Well, I may be able to?"

A. I might have said I might have been able to, yes, but not in the condition that the machine was in then. Of course, we would have to make some changes.

Q. You mean you could take the machine and build a new carbureter?

A. Make it over, yes, sir.

Q. Do you mean to say that some of these bricks used in that machine were double kiln-dried, or once in July and another time later? A. Yes, sir.

Q. Built fires under them twice? A. Yes, sir.

Q. Were they covered up from July till the test?

A. In wet weather they were partly so. Some of them were and some were not. We got them over into another pile and mixed them together. Part was kiln-dried previously and part we kept on making and added to the pile. There was no particular segregation of what was kiln-dried and what had been sun-dried. They were all piled together.

Q. And some were covered up and some not covered up?

A. They were covered up when it was raining.

Q. And still the water got into them and soaked them? A. Some of them, yes; not all of them.

Q. Didn't you testify that all of them were kiln-dried?

A. No, sir, not all of them were kiln-dried. [678]

Q. Didn't you build fires around all the brick?

(Testimony of John T. Creighton.)

A. Well, we stripped the fires first. We stripped all we could.

Q. What do you mean by stripping?

A. Taking the brick that had been outside and found not to be down to ten per cent moisture, and the brick that had been down to ten per cent moisture we segregated them partly.

Q. What did you do with them?

A. We gave the bricks with less than 10 per cent moisture to Mr. White to practice on and make gas. He practiced on a lot of them—the sun-dried brick.

Q. When was it that you undertook to purchase a machine strong enough to brick this stuff dry? Before or since the test?

A. I believe we were negotiating for it at that time. I won't be sure.

Q. When was it that you made the experiment that you speak of with the strong press? Was it recently?

A. Well, mostly within about a year or a year and a half ago.

Q. What did you do with the waste material that is now used in your water-gas set that results from handling this material?

A. We throw it in the dump. If there is very much big stuff comes out, we might pick it up—a few wheel-barrow loads—and throw it back in again.

Q. Where is the dump?

A. Over on the other side of the Los Angeles River, northeast of the plant.

Q. Who hauls that?

(Testimony of John T. Creighton.)

A. The wagons employed by us hauls it away.

Q. How often? [679]

A. Every day.

Q. How many wagon-loads a day?

A. I couldn't state how many a day. I would judge there is eight or ten or twelve or something like that. Five or six wagon-loads every time the fires are cleaned.

Q. Who hauls it?

A. The teamsters employed by us, in the wagons.

Q. Is that the material that is shaken out in handling or the material that comes out from under the grates?

A. The material that comes out under the grates we call ashes.

Q. You think this machine was primed for a week or more before the test started? A. Yes, sir.

Q. Don't you know that Mr. White was working inside of the machine and outside of the machine right up to the day before the test was started?

A. He was putting on an extra blast pipe around there, but that didn't keep his attention from priming the machine and getting it ready. They were working at that, and that didn't interfere with them materially, only for a day or two.

Q. You think he was attending to the fires all the time? A. Yes, sir.

Q. How do you know that? A. I saw him.

Q. Have you a record of the test of this brick pile before it rained, when you say there was less than 10 per cent moisture? A. I haven't got it.

(Testimony of John T. Creighton.)

Q. Who has it? A. The chemist. [680]

Q. You say you tested hundreds and hundreds of bricks from the pile? A. Yes, sir.

Q. And a record was kept? A. Yes, sir.

Q. Can you produce it?

A. I can't produce it personally. I believe the chemist can produce it.

Q. Did I understand you to say that you have no way of disposing of this carbon to any profitable extent? A. No, sir; only to throw it in the dump.

Q. I am referring to the material—the lamp-black—after being bricked or briqueted. Was that the statement that you made here that you had no way of disposing of it, when you were asked the value of it?

A. No way, except to use it at the plant, do you mean?

Q. Yes, sir.

A. We have no way of to any great extent. Yes, that is the statement I made—in proportion to the amount I made.

Q. You meant you couldn't find a market for the large quantity that you produced? A. No, sir.

Q. And can't you dispose of it profitably?

A. No, sir, cannot dispose of it profitably.

[Testimony of F. S. Wade, for Plaintiff (Recalled in Rebuttal).]

F. S. WADE, recalled on behalf of plaintiff in rebuttal, testified as follows:

(By Mr. GOUDGE.)

Q. Do you know of these carbon bricks that were accumulated by the gas company prior to the final

(Testimony of F. S. Wade.)

test of this water-gas set of The Western Gas Construction Company?

A. I do. I have examined those bricks a number of times and made tests of them. [681]

Q. Do you know whether that stock of brick was on hand in the yards in the year, 1909?

A. In the fall of 1909.

Q. Did you at that time make any test of those bricks for the moisture content?

A. I made tests of those bricks the 1st of every month at that time, and later in the fall I made some special tests.

Q. Do you know how early, or how long prior to the test in March, 1910, you made any examination of this lot of brick for moisture?

A. I believe I made some tests as early as October, 1909.

Q. And what moisture content did they show then?

A. The moisture content was at one time as low as 12 per cent, as reported on the monthly report of the carbon on hand.

Q. How was this test made? Was it just a single sample or any effort made to get an average?

A. I attempted to get samples—a number of brick—in digging down into the pile and taking bricks so that they would be representative of the average moisture of the pile.

Q. Now, from then on you say you made tests as often as every month?

A. Once a month it was reported.

Q. Did the moisture content of the bricks in that

(Testimony of F. S. Wade.)

lot or stock change during the subsequent time up to February 1910, and if so, in what manner?

A. The moisture content changed very decidedly from the 1st of December to the end of December, 1909. I don't recollect what the moisture percentage was after that time. We started to build a kiln soon after that, and the special tests were made on the kiln. [682]

Q. In what direction did they change?

A. They changed upwards. The moisture percentage increased.

Q. Do you remember how much?

A. Something over eight per cent. An increase of eight per cent is what the tests show. I believe it was something over nine per cent, as a matter of fact.

Q. Did the moisture content show 20 or more per cent?

A. 21.7 per cent, after a very careful determination that I made at the end of December.

Q. The same lot of brick? A. Yes, sir.

Q. Was that the same brick used subsequently in this test?

A. The same brick or the same piles of brick.

Q. Have you ever made any physical experiments and investigations into the tensile strength or the stability of these carbon bricks after they are dried, either naturally or artificially?

A. I have, recently.

Q. State, if you can, from any such examination had, how a kiln-dried brick compares with an air-

(Testimony of F. S. Wade.)

dried brick, the conditions of the bricks otherwise being the same?

A. According to the tests I made, applying what is called the drop-test—a physical test specified in the publication of the United States Geological Survey—the kiln-dried brick showed very considerably more cohesiveness—is the word I would use—than the air-dried brick. The brick used in these experiments was taken about the same time from the brick press or as near as we could get them at the same time, one lot air-dried and the other lot kiln-dried.

Q. To what degree of moisture? [683]

A. The actual moisture results in percentages, I believe, the air-dried brick was 8.7 and the kiln-dried brick was 5. and a fraction, and I don't remember the fraction.

Q. The kiln-dried brick was the drier of the two?

A. A trifle drier.

Q. Otherwise the brick were the same?

A. Yes, sir. The analysis showed them to be almost identical.

Q. How did the five per cent kiln-dried brick compare in what you call cohesiveness with the 8 per cent air-dried brick?

A. The 5 per cent kiln-dried brick showed very considerably more or higher cohesiveness than the 8 per cent air-dried brick.

Q. By the application of the drop test?

A. By the application of this drop test.

Q. Explain what that is and how it operates on these two kinds of brick?

(Testimony of F. S. Wade.)

A. The drop test as described in this pamphlet consists in taking 50 pounds of the material to be tested and dropping it—placing this 50 pounds of material in a box having a trap-door, the bottom of the box being $6\frac{1}{2}$ feet from a cast-iron plate as specified. I used a concrete surface. I did not have a cast-iron plate. The trap-door is suddenly released and the brick dropped. The material that is dropped through the whole mass is sifted through a screen of 1-inch mesh. The part of the material that does not pass through the screen of 1-inch mesh is returned to the box, and the process is repeated five times. At the end of the fifth dropping the amount of material which does not pass through the screen of one-inch mesh is weighed, and that weight is expressed in percentage of the original weight and called the material not passing the one-inch mesh. [684]

Q. So that the drop test consists essentially of dropping the material tested from the height of $6\frac{1}{2}$ feet five times?

A. Five times, onto a solid surface.

Q. Can you state in figures how the kiln-dried brick compares with the air-dried brick under this test?

A. The kiln-dried brick showed 88 per cent not passing the one-inch screen; the air-dried brick showed 70 per cent not passing the one-inch mesh.

Q. Now, this kiln-dried brick, kiln-dried to a moisture content of about 5 per cent, after being dropped through a height of $6\frac{1}{2}$ feet onto a solid

(Testimony of F. S. Wade.)

surface, five consecutive times, yet remained as to 80 per cent of it, in pieces too large to pass through a one-inch mesh? A. Yes, sir.

Q. While the air-dried brick left how much?

A. Just 70.

Cross-examination.

(By Mr. CHAPMAN.)

Q. Have you got the records of that test in writing, in the form of a report?

A. Not in the form of a report.

Q. Have you got the figures or date?

A. Yes, sir.

Q. Will you let me see it?

A. I believe the date is there.

Mr. CHAPMAN.—9-16-11.

A. Yes, sir, the 16th of September. [685]

Q. You did not see these bricks made?

A. I was at the press when they were made, yes, sir. The sun-dried bricks I placed myself on some tin. The kiln-dried bricks required quite a number of bricks to build the kiln. I did not stay there all the time the kiln was being built, but I saw it started.

Q. Do you know how much moisture was in the kiln-dried brick before it was bricked?

A. The general practice is about twenty to twenty-five per cent.

Q. How much fire was put under this kiln? Do you know?

A. I saw the fire a great many times. The attempt was to duplicate the conditions used in dry-

(Testimony of F. S. Wade.)

ing these bricks—I should say about the same amount of fire—a carbon fire was used—in these kilns as was used in the kilns drying the bricks for this water-gas test in March or February, 1910.

Q. You did not make any analysis of the moisture content in the material before it was bricked?

A. No, sir, I did not. I neglected to do that, although I made regular tests of the general run of the material, and it is always from twenty to twenty-five per cent moisture.

Q. Didn't you make any effort to ascertain how much temperature you were getting under the bricks from this fire?

A. I did not. It would have been almost impossible to ascertain.

Q. How long were they in the fire?

A. They were in the fire, I should say, about five days. I think about five days. [686]

[**Testimony of C. A. Luckenbach, for Plaintiff
(Recalled in Rebuttal).]**

C. A. LUCKENBACH, recalled for plaintiff in rebuttal, testified as follows:

Direct Examination.

(By Mr. GOUDGE.)

Q. In your testimony heretofore given, you state the water-gas set of The Western Gas Construction Company had been removed, and I think you gave the day when it was removed. State what reason there was, if you know any reason, for removing the set.

(Testimony of C. A. Luckenbach.)

A. It was removed in order to build and construct an oil-gas set at the same location.

Q. Was there at that time any need of increase in your gas making apparatus?

A. That was the reason I installed the set, in order to increase our capacity. [687]

Q. Was there some other convenient site for an oil-gas set that you were about to install?

A. There was not, no, sir.

Q. How was it at that time? How was it at that time the ground on which your gas plant was located, occupied, with reference to there being plenty of space on the ground?

A. We were very much cramped for space. Very much so.

Q. Do you know of any other reason for removing this set at that time? A. Absolutely none.

Q. You were at that time manager of construction? A. Yes, sir.

Cross-examination.

(By Mr. CHAPMAN.)

Q. You found it considerable cheaper to make oil-gas along in 1909 than water-gas, did you not, Mr. Luckenbach?

A. No, sir. The original reason for installing the oil-gas generator was before that, and the original reason for installing this set was because we could make this gas cheaper.

Q. Wasn't there a drop in the price of oil in 1909?

A. There may have been some drop, I won't say. In 1909? Not to the best of my recollection.

(Testimony of C. A. Luckenbach.)

Q. Hasn't the price of oil been gradually depreciating?

A. I am not in close touch with the price of oil at the present time, but I believe we are paying more for oil now per thousand cubic feet of gas made than we were in 1907.

Q. I am asking you if during the last two or three years the price of oil per barrel was not diminished? [688]

A. To the best of my judgment, the price of oil such as we use in the manufacture of gas has increased rather than diminished.

Q. Do you know about it?

A. That is my judgment. While I say I am not in close touch with the matter—I don't buy the oil—as I gather from different conversations in reference to contracts, and what I do know about it, I would say the oil costs more per thousand feet of gas than it did, and it has for the last three or four years.

Q. I am not asking for your judgment, but do you know the fact.

A. I am explaining as closely as I can. My belief is that it costs more, and that belief would govern me in forming my decision as manager of that department.

Q. Isn't it a fact that within the last couple of years your market and your business of bricking this lamp-black material and supplying it to the domestic trade has been very materially increased?

A. It has increased, but not materially in comparison to the increased output of the carbon. That

(Testimony of C. A. Luckenbach.)

is, the percentage of increase of lamp-black sold in briquets as compared to the total output is not materially improved.

Q. Isn't it a fact that you found that this lamp-black material can be disposed of for this purpose to very much better advantage than it can be converted into water-gas?

A. No. If we could dispose of it all, I would say yes. But we have not been able to and do not expect to be able to.

Q. How much did you get for these bricks per ton?

A. Eight dollars at the yard. We did up to the first of the month. I believe we are now getting nine dollars. [689]

[**Testimony of D. J. Young, for Plaintiff (in Rebuttal).]**]

D. J. YOUNG, called on behalf of the plaintiff in rebuttal, being first duly sworn, testified as follows:

Direct Examination.

(By Mr. GOUDGE.)

Q. What is your occupation?

A. I am superintendent of manufacture of the Los Angeles Gas and Electric Corporation.

Q. Manufacture of gas? A. Yes, sir.

Q. How long have you been in their employ?

A. I have been in their employ for about two years and a half.

Q. Did you ever have anything to do with the operation or did you observe the operation of the water-

(Testimony of D. J. Young.)

gas set installed by The Western Gas Construction Company at the gas-works during the test run of March, 1910? A. Yes, sir.

Q. What connection did you have with it, and what particular observation did you have?

A. About the first ten days of the test, I was the inspector for the Manager of Operations, and the last ten days I was acting superintendent. I took charge as superintendent on April 1st.

Q. Superintendent of what?

A. Of the gas-works—gas manufacture.

Q. How long an experience have you had in the gas manufacturing business?

A. I had two years experience back east, and then two and a half years here. [690]

Q. What were you doing in the business back east?

A. Operating a water-gas plant.

Q. Using what material for fuel? A. Coke.

Q. During your experience here, what material have you used? A. Carbon lamp-black.

Q. Did you see the fuel delivered to this water-gas set? A. Yes, sir.

Q. That was bricked fuel? A. Yes, sir.

Q. I call your attention to the brick lying on the clerk's desk, and ask you if that is a representative sample of the kind of fuel that was furnished to this set during this test? A. Yes, sir.

Q. What shape did you use the carbon in the water-gas set of the gas company in your experience?

A. We have used both lump and brick.

Q. In using bricks, were they such brick as this?

(Testimony of D. J. Young.)

A. Yes, sir, the same kind of brick.

Q. How did the brick furnished to this set during this test compare with the average run of brick that you used in your own water-gas set?

A. They compared very favorably. That is, these bricks are as good or better than our ordinary bricks.

Q. How do they compare in tensile strength and cohesiveness and ability to retain their shape?

A. I think the brick furnished them were a little better in that respect. The bricks that we ordinarily used were not as well dried as those bricks are.

[691]

Q. Did the bricks that were furnished this set during the test run, break up at all? That is, on their way to the generator? A. Yes, sir.

Q. To what extent?

A. Well, they were dropped into a hopper below and carried above into a bin and slid from the bin into the charging-box, and they broke up just about as our brick do under that handling. I would say anywhere from ten to fifteen per cent of waste was sifted out on the screen above.

Q. By sifted out, do you mean sifted out before or after the brick went into the generator?

A. Before they went into the generator.

Q. After the material went into the generator, how much fine material or dust?

A. Well, there was very little or practically none of it dust. There were some small particles of brick went in, maybe as big as your fist or half a brick or something of that kind, but very little of what you

(Testimony of D. J. Young.)

would term as dust.

Q. Did you observe at any time the condition of the fuel bed during the time of this test?

A. A few times. I did not observe it very closely.

Q. Have you had occasion to examine and observe the fuel bed in your own water-gas set while you were manufacturing gas from this same brick?

A. Yes, sir.

Q. How did the appearance of the fuel bed in this Western Gas Construction Company's set compare with the appearance of the fuel bed in your own set when operating with the same kind of fuel?

A. Well, it looked just the same. I couldn't tell any difference. [692]

Q. Have you any experience with the making of brick from loose lamp-black? A. Yes, sir.

Q. Do you know anything about the behavior of the lamp-black in the brick-making machines and the capacity of the brick-making machine with lamp-black having different percentages of moisture in the loose material? A. Yes, sir.

Q. State what the different degrees or percentage of moisture in the loose material,—what effect it has upon the making of brick with that material?

A. With the brick machines that we use, it is impossible to make bricks with material, say, of five to ten per cent. We cannot get them to a hard and brick form—if we put more pressure on, the machine either breaks or stalls. With bricks made with fifteen or twenty, they retain their form in good shape and make good, satisfactory brick. Our average prac-

(Testimony of D. J. Young.)

tice in making bricks is from twenty to twenty-five per cent moisture.

Q. You mean moisture in the loose material?

A. Yes, sir.

Q. What do you do, if anything, with the brick after it is made, to reduce the moisture content in the brick?

A. We pile them about five or six feet deep and let them stay till we are ready to use them.

Q. Is it your practice to do that, or do you take the brick of twenty-five per cent moisture and use them?

A. We have used twenty-five per cent moisture bricks, but we find it gives better results to air-dry them.

Q. Have you any experience with kiln-drying these bricks? A. Yes, sir.

Q. Do you know what, if any, difference kiln-drying makes with bricks from the air-drying? [693]

A. I couldn't tell any difference between the kiln-dried brick and the air-dried brick. The experience I had was in connection with this set.

Q. Have you compared the brick from the same material made under the same conditions that were air-dried and kiln-dried in order to ascertain whether there was any apparent difference?

A. I don't know that I ever got the two right together, but I had quite a good deal of experience in handling air-dried brick, and in that test I watched those bricks very closely, and I think I know the equalities of the two bricks, and I couldn't tell that

(Testimony of D. J. Young.)

there is any difference.

Q. Could you distinguish one from the other if samples were shown you? A. I think not.

Q. I call your attention again to this sample, exhibit "L," and particularly to the cracks that show on the surface, running longitudinally in the brick, on the narrow face, and ask you if that is or is not a common appearance with these lamp-black bricks?

A. Yes, that is a common occurrence with manufactured brick.

Q. Does that characterize either the kiln-dried or the sun-dried brick?

A. Yes, sir. That is in the brick as it is made, and has no reference to the way it is dried.

Q. Do you know what the effect of overloading the carbureter with oil in the water-gas set is in operating the machine? A. Yes, sir.

Q. What is it?

A. It has a tendency to stop the carbureter up. That is the effect it has on the machine. You mean how it is observed?

Q. Yes, both how it is determined and observed—
[694]

A. It overflows into the seal, and evidences itself there.

Q. Have you any knowledge how this machine behaved in that respect?

A. I only noticed that once or twice. I saw oil on it once or twice. I didn't notice it very often.

Q. That was oil in the water coming from the seal?

A. Yes, sir.

(Testimony of D. J. Young.)

Q. How often were you there so that you could see the water in the seal?

A. The last ten days of the test I was up there once or twice every day, but I didn't pay particular attention to that?

Q. Is the sufficiency of the carbureter in a water-gas set dependent at all on the shape of the carbureter, or does it depend entirely upon the number of brick in use, or on the area of the heating surface inside? A. It depends on both.

Q. What difference does the shape of the carbureter have?

A. Well, if the carbureter is too small in diameter or cross-section, or has the same amount of brick in it that one of the larger cross-section area has, it will not handle as much of the oil. That is, it will not gasify as much oil. To illustrate that better, you may carry it to an extreme and assume a carbureter only a few feet in diameter, but still long enough to have the necessary amount of checker-brick. It is very obvious it would not handle the amount of oil used to enrich the gas.

Q. From your experience in the operation of water-gas sets, what in your opinion is the average daily capacity of this set, run to its full capacity for a period of twenty consecutive days? Take the generator first.

A. I think the generator is probably of sufficient capacity to make 2,000,000 feet.

Q. For that period of time, continuous run?
[695] A. Yes, sir.

(Testimony of D. J. Young.)

Q. How about the carbureter?

A. I don't think it is. I think it is too small to handle the oil for that much gas.

Cross-examination.

(By Mr. CHAPMAN.)

Q. If the machine was operated more than 7 or 8 days continuously without any burning out of the carbureter, would you expect it to be in first-class condition?

A. Well, I don't know. The machine ought to run 20 days without being very seriously affected in the carbureter.

Q. Then, why do you burn out your machines once every week? [696]

A. We burn them out for two reasons: The main reason is to be certain that they are given the proper attention. We operate on a schedule, and those machines want to be kept in proper condition. They are burned out at a regular time every week, and we know that it is done. Another reason is so that they can burn out in the carbureter whatever choking up there is in there. They burn out sometimes twelve hours a week, and sometimes twenty-four, and sometimes less. We have operated them for a considerable length of time without any burning out, without any serious effects of them.

Q. Suppose this machine started up on the 17th and made on an average considerably over 2,000,000 feet of gas, until the 26th—eleven days?

A. That would be ten days, I think.

Q. Without any burning out of the carbureter,

(Testimony of D. J. Young.)

would not that indicate that it had a capacity to make 2,000,000 feet of gas regularly right along, continuously, if at the end of every sixth day it was put upon draft for a day?

A. The condition of that carbureter at the end of that period would make a good deal of difference. If the carbureter at the end of that period was clear and in fairly good working condition, it might indicate that it was making 2,000,000. But if it was seriously clogged, it would indicate that it would not make 2,000,000.

Q. Well, at the end of the 6th day would be the 22d? A. Yes.

Q. And if on the 22d the machine had made 2,074,000 feet of corrected gas, wouldn't that indicate that the carbureter must have been in pretty fair condition?

A. Well, I don't know. I take it it would depend on the way the make went. If the make was large and dropped off regularly, it would show that the carbureter was not in good condition. [697]

Q. Suppose on the next day and the next day it made a little over 2,000,000 feet, and on the third day after that and the fourth day it made a little over 1,900,000 feet, wouldn't that indicate that at the end of the sixth day the carbureter must still have been in fair condition?

A. I don't know. I don't know that it would indicate it.

Q. Were you educated as a gas engineer?

A. No, sir, I was educated as a civil engineer,

(Testimony of D. J. Young.)
which has mechanical engineering.

Q. Have you studied mechanical engineering?

A. Yes, sir.

Q. Have you ever paid attention to the designing of water-gas apparatus?

A. I have paid a good deal of attention to the designing of them.

Q. Have you ever had anything to do with the operation of water-gas sets other than the sets in Kentucky and the sets here? A. No, sir.

Q. Your actual experience in the handling of such machines has been obtained in your experience in these two places, during the last three or four years?

A. A period of about five years.

Q. How soon after overloading a carbureter with oil would it evidence itself in the seal?

A. If the carbureter was good and clean and they started to overcrowd it, it might take two or three days to evidence itself.

Q. You mean by overloading it, more oil than can be gasified?

A. Yes, sir, the oil would be deposited on the bricks [698] instead of carrying over into the seal, and after it has deposited on the brick as much as it will carry, then you get it in the seal.

Q. Why doesn't it continue to deposit on the brick instead of going to the seal?

A. It does. It always goes on. The brick is not able to take as much.

Q. Isn't it a fact that the oil that appears in the seal is not oil that runs through by gravity, but is

(Testimony of D. J. Young.)

carried through by the gas? A. Yes, sir.

Q. In other words, the oil comes over with the gas?

A. Yes, probably in fog form, when it is carried through in the form of gas.

Q. A vapor form? A. Yes, sir.

Q. And the gas comes in contact with the ungasified oil, which absorbs it in that vapor form and carries it into the seal.

A. It is shoved forward by the velocity of the gas.

Q. Can you explain why it is that the gas that comes in contact with the oil—the ungasified oil—say in the first ten minutes that there is any ungasified oil, it does not carry some part of it over into the seal instead of waiting two or three days?

A. It has got to go through all the checker-brick and the superheater. The checker-brick will stop the oil till their surface commences to get coated.

Q. Why is it that the gas coming in contact with the oil the first time does not carry it over and yet it does carry it over later? [699]

A. As your carbureter gets choked up, the space between the bricks is smaller and the gas comes through at a faster velocity than when it is perfectly clear. It has a smaller area to go through.

Q. It must get velocity where it takes oil over?

A. Yes, sir.

Q. You don't mean the oil is in the form of a liquid oil? A. No, it is in the form of fog.

Q. And it passes as easily and readily as the gas?

A. No, I don't think it would. It is heavier than gas.

(Testimony of D. J. Young.)

Q. So it cannot pass over and show in the seal until after the carbureter was clogged up?

A. Now, if you are very seriously overloaded to start with, some will come over to the seal. But if your overload is not so large, it will take longer.

Q. You might see it instantly?

A. You might see it instantly if you pumped enough oil in there—almost instantly.

Q. Isn't that the criterion that the gas operator goes by when he is operating his machine,—that he watches the seal all the time? A. Yes, sir.

Q. And if he sees it appear, he reduces the quantity of oil and raises his heat? A. Yes, sir.

Q. Isn't he able to be advised all the time as to the balancing of his machine in regard to the quantity of oil he carries?

A. He takes into consideration the heat in his carbureter. If he has a sight-hole he can see and tell how hot it is [700] by looking at it.

Q. You can talk about a good, satisfactory brick, and I believe you describe that as a good, satisfactory brick. Do you mean one that can be handled through the course that the brick had to go through into this generator without breaking or without crumbling up?

A. Without any serious breaking. That brick broken in two, if there was no further breaking, would be just as good as it is that way.

Q. Would you call a brick a good, satisfactory that you could give a kick and pulverize it and break it all to pieces?

(Testimony of D. J. Young.)

A. It depends on how hard the kick is, but an ordinary shove of the foot would not show a good, satisfactory brick. It should stand a drop of two or three feet.

Q. Would you say you were served with good, satisfactory brick if in putting them through the course that this went, probably 15 or 20 or 30 per cent of them broke up and went through the slots that were cut in those chutes?

A. We have that condition *all time* down there, and we call it satisfactory. About 15 per cent waste, or something like that.

Q. Isn't it a fact that in the process that you now use that you can make a brick that is able to withstand almost any kind of handling and that you can throw around, and is strong and solid?

A. Well, there is a pretty good sample; that brick right there is a very good sample of the brick that we make at present.

Q. I am asking you if you do not make a good, strong, substantial brick that will withstand any reasonable handling? A. Yes, sir.

Q. And these briquets that you briquet up are strong and [701] solid and hard as coal?

A. They are not as hard as coal, but they are good strong solid briquets.

Q. Do you know how these briquets were made that were used in this test? A. I do not.

Q. You do not know whether the material went through the drier before they were bricked or not?

A. No, sir.

(Testimony of D. J. Young.)

Q. Isn't it true that in making your brick at the present time that you deliver from the drier carbon containing from 15 to 20 per cent moisture?

A. No, sir, not brick.

Q. I mean the material.

A. No, sir, we are not making bricks out of mechanically-dried material, and have not for several months.

Q. In making briquets you do?

A. In making briquets we do.

Q. Then, you carry it by conveyors to a screen about a quarter inch mesh, and there remove the lumps, and deposit the carbon in the bin?

A. Yes, sir.

Q. Then, you press the carbon into the brick for water-gas or boiler fuel or into a briquet *or* commercial fuel?

A. We don't do that at present, no, sir. We have not for several months. We can do it and may do it sometime, but we do not do it now.

Q. You did as late as September, 1911, didn't you?

A. No, sir.

Q. Now, did you write this paper published in the "Journal of Electricity, Power and Gas" of September 23, 1911? [702]

A. I wrote that in August.

Q. You did it as late as August?

A. No, sir; we had not made bricks out of mechanically-dried stuff for several months.

Q. Is this a correct statement: "While the bricks or briquets as they leave the machine, are apparently

(Testimony of D. J. Young.)

very strong, they are not ready for use until they have been seasoned or air-dried." A. Yes, sir.

Q. Then, they have to remain in the air and be allowed to set or season? A. Yes, sir.

Q. And the effect of which is to cause them to set?

A. Yes, sir.

Q. Is this a correct statement: "In air-drying the briquets we pile them from four to six feet deep and leave them for three to six weeks."

A. Yes, sir, that is correct.

Q. And is that a sufficient time ordinarily to cause them to set and dry out?

A. In the summer time it is; yes.

Q. You do that under cover, do you not?

A. Some under cover, but most are air-dried out in the open.

Q. Don't you state in that article that "This should be done under cover"?

A. Yes, sir. That had particular reference to places where they have more rain than they do in Los Angeles.

Q. And that makes a good, hard, substantial article? A. A very satisfactory article.

Q. Either brick or briquets?

A. Yes, sir. [703]

Q. That can be handled without danger of breaking in any reasonable manner?

A. Yes, sir, without any serious breaking.

Q. Is this a correct statement: "While at present we use carbon for boiler fuel and water-gas fuel, and manufacture briquets for sale as commercial fuel,

(Testimony of D. J. Young.)

our experience has proven that briquets for commercial fuel yield the greatest value per ton for the carbon, and therefore receive first consideration in our plant"? A. Yes, sir, that is a fact.

Q. What is the capacity of your drying apparatus, Mr. Young?

A. The present capacity is about 85 tons, 75 to 85 tons.

Q. Per day?

A. Yes, sir, figuring on the material to have 15 or 20 per cent moisture.

Q. What was the capacity at the time this test was in progress? A. About 30 tons.

Q. Did you have any of the machines at that time that you have now? A. Yes, sir.

Q. Isn't one of those machines 40 tons and the other about 50?

A. It might be possible to force the smallest machine up to 40 tons a day. [704]

Redirect Examination.

(By Mr. GOUDGE.)

Q. This drying machine you refer to is the machine for drying the loose carbon?

A. Yes, sir, for drying the loose carbon.

Q. Is it capable of drying brick?

A. No, sir.

[Testimony of F. S. Wade, for Plaintiff (in Rebuttal).]

F. S. WADE, recalled on behalf of plaintiff in rebuttal, testified as follows:

Direct Examination.

(By Mr. GOUDGE.)

Q. State what is the process, chemically, or the change that the oil is subjected to that is injected into the carbureter in a water-gas set. What is the chemical or scientific name for the change that takes place in that oil? A. Destructive distillation.

Q. Upon what chemical constituent or constituents in the oil or in oils subjected to destructive distillation does the amount of residue deposited or left after that distillation has occurred, depend?

A. It depends first on the nature of the hydrocarbons being distilled, and at the same time, the percentage of carbon in those hydrocarbons—in the hydrocarbons that make up the oil, or whatever is destructively distilled.

Q. Now, all natural oils—petroleum, that is to say—are called hydrocarbons? [705]

A. They are mixtures of hydrocarbons.

Q. Is there any name chemically or scientifically given to the residuum that said oils leave behind after distillation?

A. Why, it is generally called coke in any practical or experimental oil distillation.

Q. And this coke is left behind after distillation? That is, there is some solid matter that does not come over in distillation?

(Testimony of F. S. Wade.)

A. Solid matter. Practically pure carbon.

Q. Have you ever subjected it to analysis with a view to determining the percentage of coke, that is, the residue left after distillation of the oil, any California oils having an asphaltum base, and eastern oils having a paraffine base? A. I have.

Q. State what are the percentages, respectively, to the cokes. That is, solid material left after distillation in those two classes of oil.

A. The percentage of coke in California oil depends very largely on the specific gravity of the oil. Taking an oil, say of 19 degrees Baume, there is about 15 per cent coke left on distillation. A sample of Wyoming oil—paraffine base oil—about 38 degrees Baume, had practically over 2 per cent coke.

Q. Now, can you state whether that is an average coke percentage in paraffine base oil, or within what percentage the average paraffine oil will range of coke?

A. I think that is fairly representative. I should say up to 5 per cent of coke in paraffine oils.

Q. And what is the range in the heavy California asphaltum oils on the average?

A. The very heaviest asphaltum oil might run quite high—25 per cent. [706]

Q. Do you know what the specific gravity Baume of the oils used in the Los Angeles Gas and Electric Corporation's gas-works is—the oils used in gas making? A. Approximately 19 degrees Baume.

Q. Taking an oil of 17 degrees—California crude oil—what is the percentage, if you know, of coke in such oils?

(Testimony of F. S. Wade.)

A. I cannot say exactly, but it would be about 15 to 20 per cent.

Q. And is that percentage by weight?

A. Percentage by weight.

Q. So, of such an oil about 15 per cent by weight is coke or solid matter which is left behind on destructive distillation?

A. Yes, at the end of the destructive distillation.

Cross-examination.

(By Mr. CHAPMAN.)

Q. Isn't it a fact that the deposits left on the checker-brick in carbureters and oil-gas machine is of the hydrocarbon? A. No, sir, it is not.

Q. Pure carbon?

A. Almost pure carbon, according to my observation—well, that depends on the stage when it is originally deposited. It is probably deposited as a heavy hydrocarbon, but that is distilled out and leaves behind a coke. The final deposit is almost pure carbon.

Q. Is it a fact that the pure carbon residue—excess of carbon after gasification will pass off with the gas as lamp-black? [707]

A. Well, a considerable percentage of it does. That is, the carbon that is made on account of the breaking down of the hydrocarbons that are distilled. There is a great excess of carbon in the hydrocarbons that are distilled and is broken down.

Q. In the water-gas carbureter you do not have any lamp-black? A. No lamp-black, no, sir.

Q. Why?

(Testimony of F. S. Wade.)

A. The distillation is not carried on to such a high temperature. The residue that would occur from lamp-black in an oil-gas generator, appears as tar. The distillation is not carried on so far. The carbon is used up in gasification to almost an entire extent, is it not?

A. With the exception of the percentage of coke that is deposited on the brick where the oil impinges.

Q. If there is an excess of coke or carbon that is deposited as the result of distillation, why doesn't it appear in the seal in the form of lamp-black particles as well as being deposited on the checker-brick?

A. That is very difficult to say. I expect there is some free lamp-black or some free carbon in tar. I won't say there is no lamp-black made in the water-gas carbureter, but it does not appear as lamp-black. I think there is some free carbon in the tar from water-gas.

Q. It is a very small percentage as compared with the manufacture of gas from an oil-gas machine?

A. Yes, sir.

Q. Do you call distillation the same thing as gasification?

A. Gasification is destructive distillation.

Q. What do you mean by destructive distillation?

A. Distillation is destructive or alteration in the [708] hydrocarbon. The destructive distillation or the product of it cannot be condensed back into the original material.

Q. It is not the mere conversion of the oil into vapor, is it? A. Gasification?

(Testimony of F. S. Wade.)

Q. No, distillation.

A. Simple distillation is the mere conversion of oil into vapor.

Q. Is that what you mean to say takes place in these carbureters?

A. There is some simple distillation, and most of it destructive distillation. I have no doubt there is some simple distillation. Some of the hydrocarbons may come over entirely.

Q. Do you know what the object of constructing a carbureter tall in comparison with the width is?

A. I can only hazard a guess. I don't know.

Q. Don't you know it is a necessity that the gas be brought to pass through as long a series of bricks as possible in order that it might be brought into contact with the surface of the brick repeatedly, to be sure that all the gas comes in contact with the brick?

A. I don't see that anything would be gained by passing or that any better results would be obtained by passing gas through a long chamber of brick at a high velocity, than to pass it through a short chamber of brick at a low velocity. I don't see that there is any particularly different result to be obtained.

Q. That is not an answer to the question I asked you. I asked you if it was not a necessity that it should be brought in contact—

A. I don't think so; no. [709]

Q. And it makes no difference whether it passes through a short series of bricks or a longer series?

A. I couldn't say. I can only base my opinion on a theory.

(Testimony of F. S. Wade.)

Q. Well, if you can't say, I will not ask for it.

Mr. EDWARDS.—That is our case.

Mr. TRIPPET.—At this time, when plaintiff is about to close its case, I think it is proper that we should make a statement so that the Court and counsel may not be misled. As I understand the theory of plaintiff's case, they rely on the stipulation in this contract in the last paragraph in which it is provided, "and the party of the first part agrees that if said party of the first part cannot, during said test, bring said apparatus to an established capacity as herein defined, of at least two million cubic feet per twenty-four hours, of the kind of gas specified in said contract, with the same economy of oil and lamp-black fuel containing not more than ten per cent moisture, mentioned in said contract, said party of the first part will remove at once without any cost to the party of the second part, said apparatus from the premises of the said party of the second part, and repay to said party of the second part all money heretofore paid or advanced by said party of the second part to said party of the first part under said contract, to wit: \$26,823.45." As I understand the theory of plaintiff's pleadings and evidence, they are seeking to recover the cost of removing that apparatus and this \$26,823.45. Our witnesses are about to leave the city, and I want to say to the Court and counsel that we will contend on the argument that that provision in the contract is void as being a penalty or stipulated damages, and it cannot be recovered. The only amount they can recover is such

(Testimony of E. C. White.)

damages as may be proven that [710] they are entitled to. And I shall object to their amending their complaint and going upon a different theory after we close the case.

Mr. GOUDGE.—May we ask which amount it is when you say that amount cannot be recovered, under your theory?

Mr. TRIPPET.—\$26,823.45.

Mr. GOUDGE.—What about the cost of material?

Mr. TRIPPET.—We will argue that that whole paragraph is stipulated damages.

Mr. GOUDGE.—Either of those amounts you refer to?

Mr. TRIPPET.—Yes, sir.

The COURT.—Under the statement, I will not allow any amendment to the complaint from this time forward. Do you gentlemen contemplate any?

Mr. GOUDGE.—No, sir.

The COURT.—Well, that accomplishes all you desire.

[**Testimony of E. C. White, for Defendant (Recalled in Surrebuttal).]**

E. C. WHITE, recalled for the defendant in surrebuttal, testified as follows:

Direct Examination.

Q. How frequently did you look into the seal of this apparatus as the test proceeded?

A. I looked at it very often during each day.

Q. Did you ever notice the appearance of the oil in the seal?

A. I never noticed the appearance to any great ex-

(Testimony of E. C. White.)

tent. There is always little blotches of oil coming over. The water was used over and over and over again in the gas company's set, as well as ours. They kept pumping it over, and it naturally was discolored, but no clear oil at any time.

Q. Did you ever notice the appearance of any oil in the seal that would indicate to you as a gas operator that the machine was being overcrowded with oil?

A. I never did, no, sir. [711]

Q. Did Mr. McDonald call your attention to any appearance of oil in the seal and state to you that it indicated that the machine was being overcrowded and did you in answer to any such statement inform him that it was too bad?

A. I never recollect saying anything to Mr. McDonald about excessive oil in the seal or his saying anything to me.

Q. Did Mr. McDonald at any time say to you that he thought the fuel was all right?

A. No, sir, he said just the reverse. He said it was rotten fuel.

Q. Did he ever make any other comment besides that?

A. Yes, he often mentioned when we were receiving the worst brick, especially the hot brick, that it was impossible to make gas with such a grade of fuel, and that if we could only let our fire down and receive better fuel, that we might build up and make good, but it would be of no use as they kept sending the same stuff over again—powdered up—and he often spoke of it as being out of the question to make good

(Testimony of E. C. White.)

with such a character of fine dust.

Q. Did Mr. Creighton ever say to you that the oil was appearing in the seal, and in connection with that statement did you ask him whether he thought it indicated a bad condition or was there any unusual quantity, or anything to that effect?

A. No, sir. I don't recollect ever talking to Mr. Creighton. I saw him very seldom on the floor.

Q. Did Mr. Creighton ever inform you that he thought the difficulty with this machine was in the lack of sufficient diameter in the carbureter or anything of that nature?

A. No, sir, it was never spoken of.

Q. Did you ever say to Mr. Carey that you didn't see why or didn't believe Mr. Luckenbach would hold you to the strict letter of the contract? [712]

A. No, sir. The last person in the world that I would say anything like that, if I was inclined to. He was inspector there and I knew he was reporting everything.

Q. Did you ever tell Mr. Carey that you knew that set or believed that set could not make the guarantee, but that the corporation would come over a little? A. No, sir, never.

Q. Or anything to that effect? A. No, sir.

Q. Did Mr. Larrimore ever tell you that Mr. Mil-lard had instructed him to inform you that your ma-chine was to make 20 candle-power gas?

A. No, sir, he never did.

Q. How soon after water-gas apparatus of this kind is overloaded with oil to such an extent that it

(Testimony of E. C. White.)

cannot be gasified by the carbureter, will it show in the seal? A. It will show almost immediately.

Q. Does it take two or three days of that condition to manifest itself?

A. No, sir, it won't take two or three minutes.
[713]

[**Testimony of E. E. Chandler, for Defendant (in Surrebuttal).]**

E. E. CHANDLER, called on behalf of the defendant, in surrebuttal, being first duly sworn testified as follows:

Direct Examination.

(By Mr. CHAPMAN.)

Q. What is your business?

A. Chemist. Professor of chemistry at Occidental College.

Q. How long have you been a chemist?

A. About ten years.

Q. And have been studying the science during all the time? A. Yes, sir; and practicing.

Q. You are familiar with this material called lamp-black, which is a by-product of oil-gas making process of the Los Angeles Gas and Electric Corporation's plant? A. Yes, sir.

Q. Do you know whether that material contains any substance of a hydrocarbon nature?

A. Yes, sir, it does.

Q. You have made some analyses to ascertain?

A. Yes, sir.

Q. Can you state in a general way what the percentage of that material is in the lamp-black?

(Testimony of E. E. Chandler.)

A. Well, it varies. The percentage of hydrocarbon will vary with the percentage of water. In one brick that I analysed where the water was 17 per cent, the hydrocarbon was 11 and a fraction, and the carbon and the ash the balance.

Q. Is that the same substance that is sometimes the volatile combustible matter? [714]

A. There are volatile hydrocarbons in the main, but not entirely volatile however.

Q. Has this volatile matter any binding characteristics? A. Yes, sir, that is the binder.

Q. What effect does it have in the compression of material into a brick?

A. That is the only thing in the brick that has any effect in making a brick from it.

Q. Is lamp-black affected chemically by being brought in contact with water under pressure?

A. Absolutely none. There is no chemical reaction, neither any physical reaction or solubility.

Q. In the solution of clay with water and packing it and afterwards drying it off, is there any different action takes place?

A. Yes, sir, a decidedly different action. The clay is lightly soluble in the true chemical sense, and also to a much larger extent in what are called pseudo solutions or colloidal solutions, the clay being slightly soluble when it is mixed up and allowed to dry, the water escaping allows the particles of clay to come in close contact with each other, and therefore gives substantiality to it.

Q. Is that the explanation why the clay has some

(Testimony of E. E. Chandler.)

adhesive stability? A. Yes, sir.

Q. Does not some reaction or effect result from compressing lamp-black with water?

A. No, sir.

Q. Why is that?

A. There is no action of water whatever on the lamp-black.

Q. Is the lamp-black soluble in the same sense that clay is? [715] A. No, sir, not in any sense.

Q. Do you know whether lamp-black which is free of this binder material that you have described as volatile hydrocarbons, could be bricked?

A. My experience is that it could not, and also my theoretical conclusion would be that it could not.

Q. Have you tried it?

A. I tried it this morning, yes, sir. I had some pure lamp-black which is the same kind used in making paint, and I ground it up in a mortar with water and got it into a stiff paste and then moulded it into a cupel machine, and then dried it out. I did not get it entirely dry. I dried it out in an oven at 130 degrees Centigrade for an hour. That is as long a time as I had.

Q. Did it have any stability at all? A. No, sir.

Q. Have you made any experiments with this by-product of the lamp-black by the application of heat to it after it was bricked?

A. Yes, sir, I sawed particles from three bricks said to come from the Los Angeles Gas and Electric Company, and dried them out at such a temperature as that the volatile hydrocarbons were expelled.

Q. What was the effect upon the brick?

A. The effect was that cracks appeared, and in one case the substance simply came in two of its own accord. That is, in picking it up it dropped in two.

Q. Have you made any other efforts to ascertain what would be the effect upon a brick of drying it out by the application of considerable heat?

A. Yes, sir, I made about a dozen bricks in a small mould [716] drying the material out first. In one case I dried it to 24 per cent moisture, in another case to 4 per cent moisture, and another case to a little over 1 per cent, and another case to 5 per cent of moisture, and then moulded the material into briquets.

Q. What did you find to be the effect of applying heat to it?

A. I found that the best results that I got were obtained from the material which contained one per cent and possibly four per cent. Those two were the best brick. I think the one containing one per cent moisture was the best, although the two were fairly good. But the one which contained the 5 per cent moisture had lost a good deal of its hydrocarbon or binder, and it was impossible to make a coherent brick of that material, with the greatest pressure I could put on it. The material that had 24 per cent moisture, as it appeared then was somewhat damp, and of course was softer than the other brick.

Q. Did it brick well?

A. It bricked well enough, yes, but it was soft.

Q. Have you tried drying out a brick that had con-

(Testimony of E. E. Chandler.)

siderable moisture, say 15 or 20 or 25 per cent, after it was bricked, by the application of intense heat to it?

A. I did. I first dried it out by the application of a moderate degree of heat, simply heating it in an ordinary oven, and then after that I dried it out by the application of intense heat.

Q. What was the result of the slight heat?

A. An improvement in every case.

Q. When you subjected it to a considerable heat what was the result?

A. It was destroyed. That is to say, the brick was destroyed. The cracks appeared. The individual particles [717] of the brick in some cases seemed to be harder than they were before. That is, in driving out the hydrocarbon and moisture the particles came close together by contraction, and cracks appeared in some cases. The particles did not crack and were hard enough but the brick as a whole broke.

Cross-examination.

(By Mr. GOUDGE.)

Q. When you say you dried those bricks at such temperature that the hydrocarbons were expelled from the brick, what temperature was that?

A. Well, that was a high temperature. I hardly know, I merely put the brick on an asbestos board and put a Bunson burner under it and heated it till no more hydrocarbon came out.

Q. That is, it was a sufficient temperature to expel all the volatile hydrocarbons?

(Testimony of E. E. Chandler.)

A. I don't say that it expelled all of them, but in the main it did. In chemical analysis we heat to a higher temperature than that.

Q. But it was sufficient to expel practically all the volatile hydrocarbons?

A. I think so, yes. I didn't make any analysis of those bricks to see how much volatile matter remained. That is, merely an estimate that I make as to the heating.

Q. None of these experiments that you made in the manufacture of brick from loose lamp-black with different moisture contents in the loose lamp-black, were made on a commercial brick-press?

A. No, sir. [718]

Q. What is graphite?

A. Graphite is one of the three allotropic forms of carbon.

Q. You know of course that powdered graphite can be pressed together in a solid form in a proper press so as to maintain its form and shape, as in the making of pencils for arc lights?

A. I won't say whether they had any binder added to them or not. They do press it out into shape. I know they do in the case of making the pencils for arc lights. There they take amorphous carbon such as this and grind it up fine, mix it with molasses decompose and the carbon which is contained joins the carbon particles together, and you get a tolerable stiff body.

Q. Now, the manufacture of these electric light pencils or carbons is carried on as you say, the main

(Testimony of E. E. Chandler.)

constituent being some form of amorphous carbon or lamp-black? A. Yes, sir.

Q. And that is made into a paste with a hydrocarbon?

A. A carbo-hydrate which is more easily decomposed than a hydrocarbon.

Q. And they assume a solid form by means of that binder. Then the pencil is subjected to such heat as to drive off the volatile part—

A. No, sir, it decomposes the carbo-hydrate as sugar does, leaving the carbon there, and that carbon being there grabs hold of the other carbon, and you get a substantial body. It does not drive off the hydrocarbon. And to the extent that this same substance contains a hydrocarbon which can be driven off without decomposition, it is of no value in the formation of a brick when it is subjected to high temperature. For instance, any of that left would be of no value in sticking [719] the raw material together. Neither would it be of any value in sticking the particles together after subjecting to a high degree of heat.

Q. The electric light pencils, after they are baked do not contain hydrocarbons?

A. No, they contain carbon that came from the hydrocarbon.

Q. They do not contain hydrocarbon?

A. No, sir, not after they are baked sufficiently.

Q. And yet the pencil is harder than it was before making?

A. Oh, yes. That is the ideal way to get your car-

(Testimony of E. E. Chandler.)

bon—from some combination, so that it comes out in atomic state, so as to come in very close intermolecular contact with the rest, and thus form a hard body.

Q. Then, the binder which would originally hold the particles of lamp-black together is either driven off or changed in the process?

A. Some of it is driven off and some, no doubt, is changed, and the carbon residue is left, and that particular residue which comes from the decomposition of the hydrocarbon would still be of use in making the brick hard, even in the heat. I had a little experience which would throw a little light on that. In this brick which I made from material containing 5 per cent moisture, I found still 8 per cent of hydrocarbons.

Q. Have you analyzed any of the brick that came from the Los Angeles Gas and Electric Corporation's yard or stock?

A. Just what was furnished me. Particles furnished me—yes, sir. Those three bricks that were furnished me. This other did not come from there. It came from the Lowe Gas Company, I understand.

[720]

Q. Well, it had been bricked?

A. Yes, sir, that which I referred to.

Q. Do you distinguish between bricks and briquets? A. Yes, sir.

Q. This was in the shape of building brick?

A. Yes, sir.

Q. Did you ever find hydrocarbons in that material? A. Oh, yes.

(Testimony of E. E. Chandler.)

Q. When you say you found 11 per cent of hydrocarbons, was that from the brick?

A. Yes, that was from this particular brick.

Q. So that in a brick formed, the material still had 11 per cent of hydrocarbons? A. Yes, sir.

Q. Do you know how that brick had been dried?

A. It was said to have been sun-dried.

Q. You don't know about that? A. No, sir.

Q. How large a percentage of moisture did that brick material contain?

A. I will have to look at my analyses. There were three bricks furnished me, all of which I analyzed. The first was a green brick.

Q. That is, said to be a green brick?

A. Yes, sir. It was a green brick because it contained 17 per cent of moisture—I will give it in whole numbers—11.3 per cent of volatile matter.

Q. By that you mean the same thing as hydrocarbon?

A. I should have said volatile hydrocarbon or volatile at the temperature used in the analysis. And a kiln-dried brick or said to be kiln-dried brick which contained 6.1 per cent of moisture and 11.1 per cent of volatile matter, and a [721] sun-dried which contained 3.5 per cent of moisture and 12.1 per cent of volatile hydrocarbons. I made those three analyses on material said to come from the Los Angeles company.

Q. These percentages are by weight?

A. Yes, sir.

Q. It is true, then, that the kiln-dried brick had

(Testimony of E. E. Chandler.)

the same percentage of hydrocarbon in it as the green brick, substantially?

A. Yes, sir, substantially the same. But you have to make an allowance there because the green brick contained 17 per cent moisture, and of course that would necessarily make the hydrocarbon in the green brick less, because the water was more.

Q. It would make it less if you took the water into account. But the proportion of hydrocarbon to carbon is not affected by withdrawing the water.

A. Yes, in that it is—wait a minute. I didn't catch your question. The ratio of hydrocarbon to carbon will not be affected.

Q. Then, the air-dried brick had still less moisture 3.5 per cent—and proportionately to the whole brick more hydrocarbon, namely, 12 per cent.

A. Yes, sir.

Q. So that if the hydrocarbon is a binder, neither the air-drying nor the kiln-drying had diminished the proportion by weight of binder in the brick?

A. Yes, I should say that the kiln-drying contained a less proportion of hydrocarbon than the sun-dried, as appears from those figures. Six to eleven as against three to twelve.

Q. No, no. I mean proportion of the hydrocarbon to the weight of the brick. You say the kiln-dried brick had 11 [722] per cent of hydrocarbon in it by weight, and the air-dried brick had 12 per cent by weight. A. Yes, sir.

Q. Do you know, assuming the same hydrocarbon percentage is in the loose lamp-black, what difference

(Testimony of E. E. Chandler.)

the percentage of moisture in loose lamp-black—what the best percentage is in practical operation in the making of brick from that material in a commercial press?

A. That has been altogether based on my experience with those twelve bricks or more that I made, and I found that the best brick which I could make was made with a low percentage of moisture.

Q. What size brick was it that you made?

A. It was about half the size of the briquet furnished by the company to the local customers.

Q. What kind of a press did you make it in?

A. We had a cylinder and a plunger and a vise.

Q. But you hadn't any experience with an actual commercial press, and as to the effect of different percentages of moisture in the loose carbon in the manufacture of brick in a commercial press.

A. I have no experience, no, sir.

Q. Was this two-inch brick that you made in the cylinder and plunger with one stroke of the compressor or one stroke of the plunger?

A. Yes, sir. The mould was something over twice as long as the brick made, and we filled it full, and then pressed it [723] as hard as we could in the vise.

Q. By continued pressure—increasing the pressure from time to time.

A. Yes, sir. Turned it up as hard as we could turn it, and then shoved it out.

Q. That would be a pretty slow process of making brick, if you had to make them by the ton, wouldn't

(Testimony of E. E. Chandler.)

it? A. Yes, sir.

Redirect Examination.

(By Mr. CHAPMAN.)

Q. I mean to ask the specific gravity of carbon.

A. It is from 1.45 to 1.7. That is, the amorphous variety.

Q. What do you mean by the amorphous variety?

A. There are three kinds of carbon; amorphous carbon, the diamond and graphite.

Q. What is this by-product?

A. It is amorphous carbon.

Q. (By Mr. GOUDGE.) There is one other question. Commercial lamp-black usually contains hydrocarbon as well as pure carbons?

A. You mean that which is given for binding purposes?

Q. Well, with such a lamp-black as the by-product of the manufacture of gas from petroleum oil?

A. Yes, sir, it contains hydrocarbons. [724]

[**Testimony of B. S. Pederson, for Defendant
(Recalled in Surrebuttal).]**

B. S. PEDERSON, recalled for defendant in surrebuttal, testified as follows:

Direct Examination.

(By Mr. CHAPMAN.)

Q. Did you observe the appearance of the seals during this test frequently? A. I did.

Q. Did you ever see any free oil or crude oil appearing there?

A. I did not. My observations were to the oppo-

(Testimony of B. S. Pederson.)

site effect. When the carbureter was taking care of the oil it usually shows in the seal-pot by showing a yellowish color in the water, and I frequently called the attention of the operator to the fact that the seal showed pretty good. At times a little tar substance would come over, and that would indicate that the apparatus was working properly, because the proper operation is to get your seal just running between tar and lamp-black without any oil. That is, in practical operation. No lamp-black, but a yellowish color on the water.

Q. In your testimony which appears on page 522, you were asked about the capacity of this machine with respect to fuel economy, and you answered that with properly made lamp-black fuel the machine would have the same capacity as coal or coke, and I don't believe you stated what the capacity of such a machine with coal or coke was. What is it?

A. The capacity of this machine with coal or coke, the generator would be largely in excess of the carbureter. But as it was originally made with the smaller grate area, the capacity with coal or coke would run up to say 30,000 feet per square foot of grate area.

Q. You misunderstand the question. You are talking about [725] fuel consumption. You say the machine would reach the same capacity as it would with coal or coke, but you didn't say in figures what it was.

A. The consumption with coal or coke will run from thirty to thirty-two pounds per thousand cubic feet made.

[**Testimony of O. M. Guldin, for Defendant
(Recalled in Surrebuttal).]**

O. M. GULDIN, recalled for defendant in rebuttal, testified as follows:

Direct Examination.

(By Mr. CHAPMAN.)

Q. When you were on the stand before, you expressed an opinion of the capacity of this machine in cubic feet of gas made per day. I will ask you to assume that this machine is operated for twenty consecutive operating days under the conditions that were described in your testimony when you expressed the opinion before. I ask you whether that fact—the basis of operation for twenty consecutive days—would affect your opinion as to the capacity which you gave.

A. It would not, if you had proper time for burning out.

Cross-examination.

(By Mr. GOUDGE.)

Q. What do you mean by proper time to burn off?

A. The custom such as in use, one day in seven, to clean your carbureter. If you are operating straight twenty-four hours daily operations.

Q. Isn't there any other proper time for burning off than one day in seven?

A. There are. It might be one day in ten or one day in six, assuming that you are running the machine continuously. [726]

Q. Now, running it for this twenty consecutive days with the proper time for burning off, what do

(Testimony of O. M. Guldin.)

you say is the capacity of this machine, in your opinion? A. In excess of three million feet per day.

Q. How much then, with that capacity would it produce in twenty days' consecutive run?

A. Twenty times three million. Twenty operating days.

Defendant rests.

Thereupon the case was argued before the Court.

[727]

The testimony hereinbefore contained constitutes all of the material testimony taken on the trial of the above-entitled action.

On the 6th day of November, 1911, the Court made and filed in said action the following findings of fact and conclusions of law and decision: [728]

*In the United States Circuit Court, Ninth Circuit,
Southern District of California, Southern Division.*

No. 1,558.

LOS ANGELES GAS & ELECTRIC CORPORATION
(a Corporation),

Plaintiff,

vs.

WESTERN GAS CONSTRUCTION COMPANY
(a Corporation),

Defendant.

Findings of Fact and Conclusions of Law.

This cause came on regularly for trial before the Court without a jury (a jury having been waived by the parties) on the 22d day of September, 1911, and

proceeded from day to day until the trial was completed on Wednesday, the 11th day of October, 1911, and the plaintiff was represented by its attorneys, Messrs. Herbert J. Goudge and LeRoy M. Edwards, and the defendant by its attorneys, Messrs. Oscar A. Trippet and Ward Chapman, and the evidence on behalf of plaintiff in support of its complaint as amended, and on behalf of the defendant in support of its answer, counterclaim and cross-complaint, having been adduced, and the cause having been argued and submitted to the Court, the Court being fully advised in the premises, now makes the following findings of fact, to wit:

I.

The allegation of the first, second, third and fourth paragraphs of the complaint as amended are true.
[729]

II.

It is true that on the 8th day of April, 1907, the Los Angeles Gas and Electric Company was desirous of purchasing a water-gas apparatus for the purpose of increasing the working capacity of its plant situated in the city and county of Los Angeles, State of California, for the production and generation of gas with the use of lamp-black, a by-product of its plant, for fuel; that defendant was informed of the needs and requirements of said Los Angeles Gas & Electric Company, and of the character of its plant, and the purpose for which it desired to purchase such water-gas set, to this extent:

That prior to said date and during the negotiations which led up to the making of the contract of April

8, 1907, set forth in the complaint herein, an agent of the defendant had various interviews with officers of said Los Angeles Gas & Electric Company, and was informed that said company desired to purchase a water-gas set for the purpose of manufacturing gas in such set by the use of lamp-black, a by-product of its plant, for fuel, and said agent of the defendant company also visited the plant of said Los Angeles Gas & Electric Company and was also by it supplied with samples of such fuel in the form of briquettes, and which briquettes were solidly and substantially compressed. And said defendant was also informed by said Los Angeles Gas & Electric Company, through defendant's said agent, during such negotiations, that the fuel to be used in said proposed apparatus would be of like quality, except that it would not necessarily be supplied in the form of briquettes of the size and shape of said samples, to wit, cylindrical in form of about $2\frac{1}{2}$ or 3 inches in diameter, but that said plaintiff was then negotiating for the purchase of a bricking machine, and would furnish said material in the form of bricks of about the size of ordinary building bricks, to wit, [730] about 8 inches in length, about 4 inches in width, and about 3 inches in thickness, or in the form of briquettes, but of the same quality as the said samples so submitted; that similar information was also given the said defendant by the said Los Angeles Gas & Electric Company in the form of correspondence which passed between them pending said negotiations, and said defendant was thereby informed that said Los Angeles Gas & Electric Company was also at said time nego-

tiating for the purchase of a drying apparatus by means of which it was anticipated that all of the said by-product from their said plant would be dried, so that the same should contain from 5% to not exceed 10% of moisture, and that after passing the drier the same would be bricked or briquetted for use in the generator as above set forth. That all knowledge of the defendant with respect to the conditions at the plant of said Los Angeles Gas & Electric Company and of the character and quality of said fuel was obtained as above set forth, and defendant relied thereon and entered into the said contract in reliance upon the information thus obtained and as above set forth.

Thereupon, defendant proposed to install and sell to said Los Angeles Gas and Electric Company an extended carbureter superheater water-gas apparatus of 2,700,000 to 3,000,000 cubic feet of gas per 24 hours a day capacity, to be used by said Los Angeles Gas & Electric Company for the production and generation of gas, which proposal was in writing, addressed to the Los Angeles Gas & Electric Company, and dated the 8th day of April, 1907, and is in the words and figures set forth in the complaint herein.

III.

That the Los Angeles Gas & Electric Company accepted said proposal in reliance in part upon the guaranties therein contained, and said parties did enter into the written contract [731] for the sale and manufacture of the apparatus described in said contract, and a copy of which together with the specifications accompanying the same, are set forth in the

complaint herein, and said Los Angeles Gas and Electric Company would not have entered into said contract except in reliance upon the guaranties therein contained.

IV.

Thereafter, defendant manufactured, at its plant in Fort Wayne, Indiana, all the parts of which said apparatus was composed, except the fire brick with which the generator was lined and the fire brick which lined the carbureter and superheater and composed the checker-work therein. And the said parts so manufactured at Fort Wayne, were delivered to the plant of the Los Angeles Gas & Electric Company in the city of Los Angeles, California, and the same were assembled, and the said apparatus consisting of an extended carbureter superheater water apparatus referred to in said contract of April 8, 1907, was installed, and said defendant claimed that the said apparatus was completed in accordance with said contract, and as the work of installing the same progressed, the Los Angeles Gas & Electric Company paid to the defendant on account of the purchase price from time to time the sums mentioned in the seventh paragraph of the complaint, and said sums have ever since been retained by the defendant herein. The said Los Angeles Gas & Electric Company claimed, and still claims, that it fully performed each and every and all of the conditions on its part under the said contract to be performed, but it has at all times been claimed by the defendant herein that said company did not fully or at all perform said contract in some of the substantial particulars

thereof, and a controversy arose after the completion of said apparatus between said companies as to whether either of them fully performed the obligations [732] undertaken by them respectively in the said contract.

V.

With respect to the issues raised by the allegations of the eighth paragraph of the complaint to the effect that after the installation and completion of the extended carbureter superheater water-gas apparatus provided for in the said contract of April 8, 1907, tests of the said apparatus were thereafter made, and to the effect that said apparatus never operated fully or completely or successfully or in any way approached or fulfilled the guaranties contained in the said contract, in the particulars set forth in the said eighth paragraph of said complaint and the denials of the said allegations in the answer of the defendant herein, the Court finds that a controversy arose between the said Los Angeles Gas & Electric Company and the defendant as to whether or not tests of the same were made, and whether or not the said apparatus did comply with the said guaranties; and at the trial of this cause it was agreed on behalf of both parties to this suit that the issues raised by the said allegations were not material to this controversy and no evidence was offered thereon.

VI.

It is not true that said apparatus as first constructed was during or at the time of the completion of any test thereof, or at any time after its construction, of no value to the Los Angeles Gas & Electric

Company by reason of the failure of said apparatus to perform according to the terms and guaranties of said contract, or for any other reason; but it is true that said company refused to acknowledge that said apparatus had been constructed or was completed in accordance with said contract, and refused to accept the same as in full compliance with the [733] said contract and said guaranties, and did refuse to pay the balance of the purchase price thereof, and did offer to permit defendant to remove the same upon repayment of the purchase money paid to it as aforesaid, and did notify defendant that the same was held subject to its disposition on that condition.

VII.

After the said apparatus was constructed as aforesaid, the Los Angeles Gas & Electric Company did demand of the defendant that it return to said Los Angeles Gas & Electric Company the money advanced and paid by it to the defendant herein, and upon the refusal of the defendant to return all or any part of said money said Los Angeles Gas & Electric Company commenced an action at law, on the 24th day of July, 1908, against the defendant herein in the Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division, to recover the money so advanced to defendant for the alleged failure to perform the contract, and defendant was served with a copy of the complaint and summons in said cause, and appeared in the said court in response thereto.

VIII.

Thereafter, on or about the 1st day of July, 1909,

negotiations were undertaken between the said Los Angeles Gas & Electric Company and the defendant herein to adjust the controversy existing between them without further litigation, and thereafter on the 12th day of July, 1909, with the express intent and purpose of finally settling and disposing of the controversy and litigation which had arisen between them as aforesaid, the said parties entered into the contract set forth in the eleventh paragraph of the complaint herein.

After the execution of said contract and before the [734] commencement of this action, the action brought by said Los Angeles Gas & Electric Company against the defendant herein as hereinbefore found was dismissed by the plaintiff herein.

It is true that the Los Angeles Gas & Electric Company did fully and completely perform each and all the conditions upon its part to be performed under the contract of July 12, 1907, after the said contract was made and up until the time of the assignment of said contract to the plaintiff herein and the assumption of its obligations by the plaintiff herein.

IX.

The allegations of the twelfth and thirteenth paragraphs of the complaint are true.

X.

After the execution of said contract of July 12, 1909, the defendant made certain alterations in its said apparatus preparatory to making preliminary tests of the said apparatus for the purpose of ascertaining what changes it desired to make, and operate the said apparatus from about the 29th day of July,

1909, to about the 14th day of August, 1909, when it shut down said apparatus for the purpose of making such changes in the same as it desired to make.

XI.

The Court further finds that a final test of the said apparatus was commenced on the 10th day of March, 1910, and the said apparatus was operated continuously with the exception of three days when the said apparatus was shut down and was not in operation on the 14th, 15th and 16th of March, 1910, except for an inconsiderable period on the 14th and 16th of March, 1910, and on the morning of the 30th of March, 1910, at 6 o'clock [735] A. M. the said apparatus was shut down and not further operated; but it is not true that defendant notified plaintiff that the test was ended at that time, but, on the contrary, on the morning of the 30th day of March, 1910, the operator in charge of said apparatus for defendant, called on plaintiff, and plaintiff immediately demanded the removal of said apparatus and the repayment of the money paid to the defendant therefor, and refused to permit any further operation, test or demonstration of the said apparatus, notwithstanding defendant did then and there offer to proceed with the test of the said apparatus for any reasonable number of days for the purpose of demonstrating the actual capacity of said apparatus, and it offered to correct any defects in said apparatus which had resulted during the operation of the same and to make another test thereof as hereinafter found.

XII.

The Court further finds that during the operation of said apparatus from the 10th day of March to the 30th day of March, 1910, as aforesaid, the same did not produce an average of two million cubic feet per 24 hours for each and every day during said period, nor was the average consumption of lamp-black fuel during said time for each one thousand cubic feet of gas made, 35 pounds or less, but, on the contrary, said apparatus did during said time consume on an average of about 39.5 pounds of lamp-black fuel containing less than 10% moisture per thousand cubic feet of gas made, treating as consumption all of such lamp-black fuel that went into the generator without any deduction for unconsumed lamp-black fuel from said apparatus; nor did said apparatus during said time maintain an average of 20 candle-power for the gas produced, but did maintain an average candle-power of slightly over 19 candle-power. And it is true that the increased consumption of lamp-black by said apparatus [736] would necessarily increase the cost of production per thousand cubic feet of gas made over what the cost would be if only 35 pounds of lamp-black fuel or less were used per thousand cubic feet of gas made, but it is not true that said apparatus is or was of no value to plaintiff by reason of its failure to have produced on an average of not less than two million cubic feet of gas for each day of the said period, nor because of its failure during said period to consume 35 pounds or less of lamp-black fuel per thousand cubic feet of gas made or for any other cause.

The Court finds that it is not true that the failure on the part of said apparatus during said period to produce the average quantity of gas above referred to with the fuel consumption per thousand cubic feet above specified was without any fault on the part of the plaintiff, but on the contrary the Court finds that there never was a test of the said apparatus under the conditions prescribed by the said contract, and the failure to test the said apparatus as provided in said contract was due to the fault of plaintiff as hereinafter more particularly set forth.

XIII.

The Court finds that after the operation of the said machine during the said period, certain mechanical defects appeared in and about the apparatus, to wit, the charging floor was slightly raised or bulged due to the expansion of the top of the generator, and the top of the generator was in a leaky condition due to insufficient reinforced support, and one of the valves installed in the apparatus was of a temporary and unsatisfactory character. Also some of the brick work in the superheater had fallen down, and in other minor particulars certain defects appeared and required repairing, but the Court [737] finds it is not true that said apparatus was in a dilapidated condition, but all of said defects could readily have been corrected and were conditions not infrequently resulting from the operation of such apparatus in the natural and ordinary course of operation, and the Court finds that defendant did offer to correct all said imperfections, and to restore the said apparatus so that the same would be in first-class order

if the said plaintiff would permit the said work to be done and would accept said apparatus or permit a test of the same under the terms and provisions of the contract, or would permit an operation or test of the same under the conditions provided in the contract for any reasonable period that might be desired by plaintiff, but plaintiff refused to accept the said apparatus or to permit any further operation of the same, but demanded that the same forthwith be removed from the premises.

Plaintiff did not fully or completely perform each and all the conditions upon its part under said contracts to be performed, but failed to perform its obligations under said contracts in the particulars herein set forth. Plaintiff has at all times claimed that said apparatus was the property of the defendant and that it held the same subject to its right to remove and dispose of the same, and has demanded that defendant remove the same and return to the plaintiff the sum of \$26,823.45 so paid by plaintiff's predecessor to the defendant as aforesaid, and defendant has failed and refused at all times to comply with said demand, but plaintiff has torn down said apparatus and removed the same from its premises at a cost of \$1500. [738]

XIV.

The allegations of the twenty-second paragraph of the complaint are not true.

XV.

The Court finds it is true that between July 12, 1909, and the first day of April, 1910, the defendant made changes and additions in and to said water-

gas set pursuant to the terms of the contract of July 12, 1909, but said changes and additions were not made at the special instance and request of plaintiff, or the Los Angeles Gas & Electric Company, but the same were made under and pursuant to the requirements of said contract of July 12, 1909, and not otherwise, and in making said changes did expend more than \$8,000, and it is true that defendant agreed to pay for the said apparatus the sum of \$35,694, provided the same was of the maximum capacity provided for in said contract of July 12, 1909, and it is true that only \$26,823.45 of said sum has been paid by plaintiff to the defendant, but it is not true that the difference between said sums, to wit, \$8,870.55, is now due and payable to defendant; and it is not true that said apparatus had an average capacity for twenty consecutive days of more than 2,700,000 cubic feet of gas per 24 hours, using not more than 35 pounds of the lamp-black fuel provided for in said contract, containing 10% or less of moisture per thousand cubic feet of gas made, and using not more than 4½ gallons of oil per thousand cubic feet of gas made, and producing a good commercial gas fixed and noncondensable of not less than 20 candle-power. [739]

XVI.

The defendant did perform the obligations undertaken by it in said contracts, but did not bring said apparatus to the maximum capacity provided for in said contracts, but plaintiff did not perform the obligations undertaken by it in said contracts in this: that it did not, during said test, furnish lamp-black

fuel of the quality called for by said contract, but on the contrary the lamp-black fuel furnished defendant during said test contained from 10% to 15% of impurities in the form of tar and other hydrocarbons, and a small percentage of noncombustible ash, and which substances substantially diminished the gas-making efficiency of the fuel. But nevertheless, the said lamp-black fuel so furnished was the lamp-black resulting as a by-product in the manufacture of gas at the plant of plaintiff, and was the lamp-black material referred to in the contracts of the parties, and was in brick form, and did contain less than 10% of moisture, and was in compliance with the contract except as hereinafter set forth. But the said bricks so furnished had been prepared by being compressed with moisture largely in excess of 10%, and the moisture then driven out leaving voids therein, and had been insufficiently compressed, and were so unstable that they were not able to withstand, and did not withstand the jarring necessarily incident to handling the same for fuel purposes in such apparatus. Notwithstanding the protests of the defendant during said test, plaintiff did furnish to defendant bricks which had been and were being throughout the entire test, subjected to external artificial heat or kiln-drying for the purpose of driving out moisture therefrom, and did also furnish considerable quantities of bricks which were still warm from said fires, which rendered them unstable and easily disintegrated and practically all the brick furnished to defendant during said [740] test were of such an unsubstantial character that

great quantities of them were necessarily broken up and crumbled in the handling of them, and that this crumbling and powdering took place to such an extent as that great quantities of fine pulverized and crumbled material unavoidably found its way into the generator, with the result that the fuel bed was packed and its efficiency largely impaired, and with the further result that excessive and extraordinarily large quantities of dust were blown over from the generator into the carbureter, and tended to form a deposit upon the brickwork in the carbureter, and to materially retard its function and impair its capacity.

Throughout said test plaintiff continued to supply bricks of the character above described, to wit, so entirely lacking in firmness and stability as that practically all of them broke more or less in handling, and great quantities crumbled and pulverized to such an extent that at times more than one-third, and almost constantly as much as 15% or 20% was screened out as waste, and at least as much more unavoidably went into the generator with the serious detrimental effects above described.

It is the custom of the plaintiff company in the operation of its other water-gas sets installed upon its premises, and was at the time the original contract involved in this case was made, and has been at all times, to shut down all of its apparatus for one day in each seven for the purpose of burning out and cleaning out the apparatus, and especially to burn off the deposits or accumulations on the fire-brick in the carbureter, and in the operation of all

gas apparatus it is customary and necessary to adopt some interval for this purpose, either by taking a portion of each day for that purpose, or electing to cease operating for a sufficient interval at stated periods varying to a considerable extent according to the conditions under which the apparatus is operated, but a burning [741] and cleaning out period of one day out of seven is a proper, practicable and reasonable custom in the operation of such a water-gas set as is involved here.

Defendant, prior to the commencement of the test, and while the test was in progress, notified the plaintiff that it understood that it would be permitted to follow the custom of cleaning and burning out one day in each week during the test, and requested plaintiff to accede to that understanding, but plaintiff at all times refused to do so, and notified defendant that no credit would be allowed for any time during which the machine was not in operation during said test. Such being the announced attitude of plaintiff, defendant did not adopt the practice of closing the said apparatus once a week during the said test, but except for three days when the apparatus was idle during the rebricking of the carbureter as aforesaid, the apparatus was operated continuously until the morning of the 30th of March, 1910. The average quantity of gas produced per 24 hours during the seventeen days on which the apparatus was actually operated was slightly in excess of two million cubic feet per day, but the average for the 20 days from the 10th of March to the 30th was about 1,700,000 cubic feet per day. About 39½ pounds of

lamp-black fuel was consumed to each thousand cubic feet of gas made, but less than $4\frac{1}{2}$ gallons of oil was consumed per thousand cubic feet. But as hereinbefore found, a test of 20 or more consecutive days was never had of the said apparatus with fuel of the character and quality provided to be furnished by the plaintiff to the defendant in the said contract, nor was the test of the said apparatus carried on from the 10th to the 30th of March as aforesaid such a test as the contract provided for, nor was the same such a test as would properly or fairly indicate or determine the capacity or economy of operation of said apparatus [742] for 20 or more consecutive days, or as a permanent operating apparatus or otherwise.

The Court further finds that during the said test defendant repeatedly protested against the character of the bricks so furnished, and did request plaintiff to furnish bricks of a more substantial or firm character, but plaintiff refused to comply with said request.

XVII.

The Court further finds that defendant has not been damaged in the sum of \$10,000, nor is there due from plaintiff to defendant the additional sum of \$18,210.95, or any other sum, nor did the said apparatus have a capacity in excess of 2,000,000 cubic feet of gas per twenty-four hours of the kind of gas prescribed in the contract of July 12, 1909, and with the fuel economies therein specified.

As the conclusions of law from the foregoing findings, the Court concludes:

1. That plaintiff is not entitled to recover the amount of money prayed for in its complaint herein, nor any sum, and that it take nothing against said defendant.

2. That defendant is not entitled to recover from the plaintiff the sum of money prayed for in its cross-complaint herein, and that it take nothing by its said cross-complaint.

3. Neither party is entitled to recover costs against the other herein. [743]

Let judgment be entered accordingly.

OLIN WELLBORN,

Judge. [744]

Whereupon judgment was entered in accordance therewith on said 6th day of November, 1911.

To the following portions of the said findings of fact, conclusions of law and decision of the Court, the said plaintiff, the Los Angeles Gas & Electric Corporation, did on the 6th day of November, 1911, except, to wit:

[Exceptions to Findings, etc.]

To the following finding of the Court:

“And said defendant was also informed by said Los Angeles Gas and Electric Company, through its said agent, during said negotiations, that the fuel to be used in said proposed apparatus would be of like quality.”

And the following finding that:

It (Los Angeles Gas and Electric Corporation) “would furnish said material in the form of bricks about the size of ordinary building bricks, to wit, about 8 inches in length, about 4 inches in width and

3 inches in thickness, or in the form of briquets."

And to the following finding that:

The said plaintiff would furnish fuel to the defendant "of the same quality as the said samples so submitted."

And to the following finding that:

"Similar information was also given the said defendant by the Los Angeles Gas and Electric Company in the form of correspondence which passed between them, pending said negotiations." [745]

And to the following finding that:

The lamp-black by-product of the Los Angeles Gas and Electric Company's plant, after having been dried to a degree of moisture of less than ten per cent, "would be bricked or briqueted for use in the generator, as above set forth."

And to the following finding that:

"All knowledge of the defendant, with respect to the conditions at the plant of the said Los Angeles Gas and Electric Company, and of the character and quality of said fuel, was obtained as above set forth."

And to the following finding that:

"Defendant relied thereon and entered into the said contract in reliance upon the information thus obtained as above set forth."

And to the following finding that:

"The defendant claimed that the said apparatus was completed in accordance with the said contract."

And to the following finding that:

"It has at all times been claimed by the defendant herein that said Company" (Los Angeles Gas and Electric Company) "did not fully or at all per-

form said contract in some of the substantial particulars thereof."

And to all of the findings set forth in paragraph V. of the findings, and to each and every particular thereof. [746]

And to the following finding that:

"It is not true that said apparatus as first constructed was during or at the time of the completion of any test thereof, or at any time after its construction, of no value to the Los Angeles Gas and Electric Company by reason of the failure of said apparatus to perform according to the terms and guarantees of said contract, or for any other reason."

And to the following finding that:

The said apparatus of the defendant was "not in operation on the 14th, 15th and 16th days of March, 1910, except for an inconsiderable period on the 14th and 16th of March, 1910."

And to the following finding that:

"It is not true that the defendant notified plaintiff that the test was ended at that time" (6 o'clock A. M. of March 30th, 1910).

And to the following finding that:

"Defendant did then and there" (March 30th, 1910) offer to proceed with the test of the said apparatus for any reasonable number of days for the purpose of demonstrating the actual capacity of said apparatus."

And to the following finding that:

"It offered to correct any defects in said apparatus which had resulted during the operation of the same."

And to the following finding that:

The defendant at said time offered "to make another test thereof." [747]

And to the following finding that:

"It is not true that said apparatus is or was of no value to plaintiff by reason of its failure to produce on an average of not less than 2,000,000 cubic feet of gas for each day of the said period; nor because of its failure during the said period to consume 35 pounds or less of lamp-black fuel per thousand cubic feet of gas made or for any other cause."

And to the following finding that:

"It is not true that the failure on the part of the said apparatus during said period to produce the average quantity of gas above referred to with the fuel consumption per thousand cubic feet above specified was without any fault on the part of the plaintiff.

And to the following finding that:

"There never was a test of said apparatus under the conditions prescribed by the said contract."

And to the following finding that:

"The failure to test the said apparatus, as provided in said contract was due to the fault of the plaintiff."

And to the following finding that:

"It is not true that said apparatus was in a dilapidated condition."

And to the following finding that:

"All of said defects could readily have been corrected."

And to the following finding that:

The said defects "were conditions not infrequently resulting from the operation of such apparatus in the natural and ordinary course of operation." [748]

And to the following finding that:

"The defendant did offer to correct all of the said imperfections."

And to the following finding that:

"The defendant did offer to restore the said apparatus so that the same would be in first-class order, if the plaintiff would permit the said work to be done, and would accept the said apparatus, or permit a test of the same under the terms and conditions of the contract"; or would permit any operation or test of the same under the conditions provided in the contract for any reasonable period that might be desired by plaintiff."

And to the following finding that:

"Plaintiff did not fully or completely perform each and all the conditions upon its part under said contracts to be performed."

And to the following finding that:

Plaintiff "failed to perform its obligations under said contracts in the particulars herein set forth."

And to the following finding that:

"The allegations of the twenty-second paragraph of the complaint are not true."

And to the following finding that:

"The defendant did perform the obligations undertaken by it in said contracts." [749]

And to the following finding that:

"The defendant did perform the obligations under-

taken by it under the contract of July 12th, 1909.”

And to the following finding that:

The “plaintiff did not perform the obligations undertaken by it in said contracts.”

And to the following finding that:

“Plaintiff did not during the said test furnish lamp-black fuel of the quality called for by said contract.”

And to the following finding that:

“The lamp-black fuel furnished defendant during said test contained from ten to 15 per cent of impurities in the form of tar, or other hydrocarbons, and a small percentage of noncombustible ash.”

And to the following finding that:

Said tar and hydrocarbons and noncombustible ash “diminished the gas-making efficiency of the fuel.”

And to the following finding that:

“The lamp-black fuel furnished by the plaintiff to the defendant during said test was not fuel of the kind and character specified and provided for in the contract of July 12, 1909.”

And to the following finding that:

“The lamp-black bricks furnished by the plaintiff to the defendant during said final test had been treated [750] in such a manner as to leave voids therein.”

And to the following finding that:

The said fuel “had been insufficiently compressed.”

And to the following finding that:

The said fuel furnished by the plaintiff to the defendant during said final test was “so unstable that

they were not able to withstand the jarring necessarily incident to the handling of the same for fuel purposes in such apparatus."

And to the following finding that:

"Notwithstanding the protests of the defendant during said test, plaintiff did furnish to defendant bricks which had been and were being throughout the entire test, subjected to external artificial heat or kiln-drying for the purpose of driving out moisture therefrom."

And to the following finding that:

"The plaintiff did furnish the defendant during said test bricks which were unstable and easily disintegrated."

And to the following finding of the Court:

"Practically all the brick furnished to defendant during said test were of such an unsubstantial character that great quantities of them were necessarily broken up and crumbled in the handling of them."

And to the following finding that:

"This crumbling and powdering took place to such an extent as that great quantities of fine pulverized and crumbled material unavoidably found its way into the generator, [751] with the result that the fuel bed was packed and its efficiency largely impaired, and with the further result that excessive and extraordinarily large quantities of dust were blown over from the generator into the carbureter, and tended to form a deposit upon the brick work in the carbureter and to materially retard its function and impair its capacity."

And to the following finding that:

"Throughout said test plaintiff continued to supply bricks of the character above described, to wit, so entirely lacking in firmness and stability as that practically all of them broke more or less in handling."

And to the following finding that:

"Great quantities" (of the bricks furnished by the plaintiff) "crumbled and pulverized to such an extent that at times more than one-third, and almost constantly as much as 15 per cent or 20 per cent was screened out as waste."

And to the following finding that:

"At least as much more" (of the waste) "unavoidably went into the generator with the serious detrimental effects above described."

And to the following finding that:

"In the operation of all gas apparatus it is customary and necessary to shut down the said apparatus at some regular interval for the purpose of burning out and cleaning out the apparatus." [752]

And to the following finding that:

"A burning out and cleaning out period of one day out of seven is a proper, practical and reasonable custom in the proper operation of such a water-gas set as is involved here."

And to the following finding that:

"The average quantity of gas produced per 24 hours during the 17 days on which the apparatus was actually operated was slightly in excess of 2,000,000 cubic feet per day."

And to the following finding that:

"A test of 20 or more consecutive days was never

And to the following finding that:

"A test of 20 or more consecutive days was never had of the said apparatus with fuel of the character and quality to be furnished by the plaintiff to defendant under the said contract" (of July 12th, 1909).

And to the following finding that:

"Nor was the test of the said apparatus carried on from the 10th to the 30th of March, as aforesaid, such a test as the contract provided for."

And to the following finding that:

"Nor was the same such a test as would properly or fairly indicate or determine the capacity or economy of operation of said apparatus for 20 or more consecutive days, or as a permanent operating apparatus or otherwise." [753]

And to the following finding that:

"During the said test defendant repeatedly protested against the character of the brick furnished."

And to the following finding that:

Defendant "did request plaintiff to furnish bricks of a more substantial or firm character."

And to the following finding that:

"The plaintiff is not entitled to recover of the defendant the sum of \$28,323.45.

And the said plaintiff, Los Angeles Gas and Electric Corporation, did, at said time, except to the failure of the Court to find and decide that the plaintiff is entitled to judgment against the defendant in the sum of \$28,323.45.

And to the failure of the Court to enter judgment

against the said defendant in favor of the plaintiff for the said sum of \$28,323.45.

And the said plaintiff, the Los Angeles Gas and Electric Corporation, did, at said time, except to the failure of the Court to find and decide that the plaintiff is entitled to judgment against the defendant in the sum of \$26,323.45.

And to the failure of the Court to enter judgment against the said defendant and in favor of the plaintiff in the said sum of \$26,323.45.

And to the failure of the Court to find that all of the lamp-black fuel furnished and supplied by the plaintiff to defendant during the final test of said apparatus was fuel in accordance with the contract of July 12th, 1909.

And to the failure of the Court to find that the operation of said water-gas apparatus by the defendant during the period from March 10th to March 30th, 1910, was a final 20-day test of said apparatus, as contemplated and provided for in said contract of July 12th, 1909. [754]

And to the failure of the Court to find that the defendant during said final test of said apparatus from March 10th to March 30th, 1910, inclusive failed to bring its said water-gas apparatus to an established capacity, as provided in said contract of July 12th, 1909, of at least 2,000,000 cubic feet of gas per 24 hours.

And to the failure of the Court to find that during said period, to wit, from March 10th to March 30th, 1910, said defendant failed to bring said apparatus to an established capacity of producing gas with the

consumption of not more than 35 pounds of lamp-black fuel per thousand cubic feet of gas made.

And to the failure of the Court to find that during said final test of said apparatus from March 10th to March 30th, 1910, inclusive, the defendant failed to bring said apparatus to an established capacity of producing during said period gas of an average candle-power of at least 20 candles.

And to the failure of the Court to find that the plaintiff had at all times performed all the conditions and obligations imposed upon it by and under said contract of July 12th, 1909.

All of the said exceptions were allowed by said Court on said 6th day of November, 1911.

By written stipulation between the plaintiff and the defendant, duly filed in said action, and by order of said Court, duly made and entered therein, it was stipulated and ordered [755] on the 10th day of November, 1911, that the said plaintiff have to and including the 2d day of January, 1912, in which to serve and file its proposed bill of exceptions for use on its Writ of Error and Appeal herein.

That thereafter and on the 29th day of December, 1911, the plaintiff duly served and filed its said proposed bill of exceptions, and thereafter, by written stipulation between the plaintiff and the defendant, duly filed in said action, and by order of said Court duly made and entered therein, it was stipulated and agreed that the defendant might have to and including the 15th day of March, 1912, within which to serve and file its proposed amendments to the said proposed bill of exceptions of the plaintiff, and that

thereafter, to wit, on the 8th day of March, 1912, the defendant duly served and filed its proposed amendments to the said proposed bill of exceptions of the plaintiff, and that thereafter, to wit, on the 9th day of March, 1912, the plaintiff served upon the defendant and filed in the above-entitled court its written notice of dissent to the defendant's said proposed amendments, and at said time gave the said defendant written notice that the settlement of said bill of exceptions would be duly called for hearing before the above-entitled court at the courthouse, city of Los Angeles, on March 12th, 1912, at 10 o'clock A. M. That at said time the attorneys for the plaintiff and defendant in the above-entitled action appeared before the above-entitled court and the settlement of said proposed bill of exceptions was thereupon commenced, and on the 14th day of March, 1912, the settlement of said bill of exceptions was duly made and completed by the above-entitled court, and the engrossment of said bill of exceptions as settled and allowed was by the said Court ordered to be made. That thereupon, by written stipulation between the plaintiff and the defendant duly filed [756] in said action, and by order of said Court duly made and entered therein, it was stipulated and ordered on the 15th day of March, 1912, that the said plaintiff have to and including the 22d day of March, 1912, in which to engross and file its said engrossed bill of exceptions in the above-entitled cause and obtain the allowance thereof by the Court.

Now, therefore, in accordance therewith, and in furtherance of justice and that right may be done,

the plaintiff, Los Angeles Gas and Electric Corporation, presents the foregoing as its engrossed bill of exceptions in this case, and prays that the same may be settled and allowed, and signed and certified by the Judge as provided by law.

WM. A. CHENEY,
HERBERT J. GOUDGE,
LEROY M. EDWARDS,
Attorneys for Plaintiff.

[**Order Approving Bill of Exceptions.**] [757]

The foregoing engrossed bill of exceptions is correct in all respects, and is hereby approved, allowed and settled and made a part of the record herein.

Done at Chambers, and dated this 22d day of March, 1912.

OLIN WELLBORN,
Judge. [757]

IT IS HEREBY STIPULATED AND AGREED that the foregoing engrossed bill of exceptions be settled and allowed, signed by the Court and made a part of the record in the above-entitled action, for use by plaintiff on its Writ of Error and appeal to be taken herein, and that the same is in all respects correct.

Dated March 21st, 1912.

WM. A. CHENEY,
HERBERT J. GOUDGE,
LEROY M. EDWARDS,
Attorneys for Plaintiff.

OSCAR A. TRIPPET,
WARD CHAPMAN,
Attorneys for Defendant. [758]

*In the District Court of the United States in and for
the Southern District of California, Southern
Division.*

LOS ANGELES GAS AND ELECTRIC COR-
PORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COM-
PANY, a Corporation,

Defendant.

**Petition for Writ of Error and Supersedeas by the
Plaintiff, Los Angeles Gas and Electric Corpora-
tion.**

Comes now the Los Angeles Gas and Electric Corporation, a corporation, plaintiff in the above-entitled cause, by Wm. A. Cheney, Esq., Herbert J. Goudge, Esq., and LeRoy M. Edwards, Esq., its attorneys, and, feeling itself aggrieved by the decision and judgment rendered and entered by the Circuit Court of the United States, in and for the Southern District of California, on the 6th day of November, 1911, petitions the above-entitled court for an order allowing said plaintiff to prosecute a writ of error to the United States Circuit Court of Appeals, Ninth Circuit, under and according to the laws of the United States in that behalf made and provided.

That a transcript of the records, proceedings and papers on which said judgment was made and entered, duly authenticated, may be sent to the United States Circuit Court of Appeals for the Ninth Circuit, and also that an order be made fixing the

amount of the security which the plaintiff shall give and furnish upon said writ of error, and upon giving said security, all further proceedings of this court be suspended and stayed until the determination of said [759] writ of error by the United States Circuit Court of Appeals for the Ninth Circuit.

And your petitioner will ever pray, *et cetera.*

Dated March 25, 1912.

WM. A. CHENEY,
HERBERT J. GOUDGE,
LEROY M. EDWARDS,

Attorneys for Plaintiff, Los Angeles Gas and Electric Corporation.

[Endorsed]: C. C. No. 1558. Dept. In the District Court of the United States, in and for the Southern District of California. Los Angeles Gas and Electric Corporation, a Corporation, Plaintiff, vs. The Western Gas Construction Company, a Corporation, Defendant. Petition for Writ of Error and Supersedeas. Filed Mar. 25, 1912. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. Wm. A. Cheney, Herbert J. Goudge, LeRoy M. Edwards, 645 South Hill Street, Room 31, Los Angeles, Cal., Attorneys for Plaintiff. [760]

ASSIGNMENT OF ERRORS. [761]

*In the District Court of the United States in and for
the Southern District of California, Southern
Division.*

**LOS ANGELES GAS AND ELECTRIC COR-
PORATION, a Corporation,**

Plaintiff,

vs.

**THE WESTERN GAS CONSTRUCTION COM-
PANY, a Corporation,**

Defendant.

Assignment of Errors.

Comes now the plaintiff, the Los Angeles Gas and Electric Corporation, and files the following Assignment of Errors, upon which it will rely upon its prosecution of its Writ of Error in the above-entitled case, to wit:

I.

Said Circuit Court of the United States, Ninth Circuit, Southern District of California, Southern Division, erred in giving, making, rendering, and entering judgment in the above-entitled case in favor of the defendant and against the plaintiff.

II.

The said Court erred in failing to give, make, render and enter judgment in the above-entitled cause in favor of the plaintiff and against the defendant in the sum of \$28,323.45.

III.

The said Court erred in making and filing the fol-

lowing [762] portion of finding No. II, as follows:

"And said defendant was also informed by said Los Angeles Gas and Electric Company, through defendant's said agent, during such negotiations, that the fuel to be used in said proposed apparatus would be of like quality," to wit, solid and substantially compressed (as the sample of briquet fuel furnished to the defendant's agent by the said Los Angeles Gas and Electric Company, prior to April 8th, 1907).

It appears from the evidence that the defendant was not, prior to the 8th day of April, 1907, or at any other time, informed by the Los Angeles Gas and Electric Company, through any of its agents or otherwise, that the fuel to be used in the said proposed water-gas apparatus of the Western Gas Construction Company would have a solidity or tensile strength to or greater than that possessed by the sample of briquet furnished to the defendant by the Los Angeles Gas and Electric Company prior to April 8th, 1907. On the contrary, the evidence shows that prior to the 8th day of April, 1907, the defendant was furnished by the Los Angeles Gas and Electric Company with a lamp-black briquet about two inches in diameter, and that the only representation made to the defendant prior to the entering into of the contract of April 8th, 1907, was that the lamp-black fuel which would be furnished to the defendant for the operation of the water-gas set under said contract would be lamp-black fuel having a chemical composition and quality equal to the chemical composition and quality of the lamp-black

briquet furnished to the defendant, and that at the time of supplying the defendant with said lamp-black briquet, [763] the said Los Angeles Gas and Electric Company specifically informed the defendant that the lamp-black fuel would not be furnished to the defendant in the size or form of the briquet, and neither stated to the defendant nor gave it any reason to expect or believe that the lamp-black fuel to be furnished to the defendant under said contract of April 8th, 1907, would possess a tensile strength or stability equal to or greater than that of said lamp-black briquet furnished to it.

The evidence is insufficient to support the said finding in the respects mentioned.

IV.

The said Court erred in making and filing the following portion of finding No. II, as follows:

That the Los Angeles Gas and Electric Company "would furnish said material in the form of bricks of about the size of ordinary building bricks, to wit, about 8 inches in length, about 4 inches in width and 3 inches in thickness, or in the form of briquets."

It appears from the evidence that on the 5th day of March, 1907, the Los Angeles Gas and Electric Company wrote a letter to the defendant, as follows:

"We are now negotiating for the purchase of a dryer to handle all of our brick, and anticipate that this [764] dryer will turn out our carbon with from 5 per cent to not to exceed 10 per cent of moisture. After passing the dryer, the same will be bricked for use in the generators."

Other than the aforesaid statement, there was no

agreement upon the part of the Los Angeles Gas and Electric Company that the said lamp-black fuel would be furnished to the defendant in the form of bricks.

The evidence is insufficient to support said finding in the respects mentioned.

V.

The said Court erred in making and filing the following portion of finding No. II, as follows:

That the said Los Angeles Gas and Electric Company, prior to April 8th, 1907, informed the defendant that the lamp-black fuel which would be furnished to the defendant for the operation of its water-gas machine would be "of the same quality as the said samples so submitted."

It appears from the evidence that at no time did the Los Angeles Gas and Electric Company inform the defendant, or state to it, that the lamp-black fuel which would be furnished to it for the operation of its water-gas apparatus would have the tensile strength or stability or solidity equal to or greater than that of the lamp-black briquet sample supplied to the defendant by the said Los Angeles Gas and Electric Company. On the contrary, it appears from the evidence that the only representation or statement made by the Los Angeles Gas and Electric Company prior to April 8th, 1907, or at any other time, in comparing the fuel which would [765] be furnished to defendant with the lamp-black sample which was furnished to it, was the statements by the Los Angeles Gas and Electric Company to the effect that the chemical constituency of the lamp-black

fuel to be furnished would be the same as that of the lamp-black briquet furnished; but no statement or representation was made as to the tensile strength or stability of the proposed fuel to be furnished to the defendant.

The evidence is insufficient to support the said finding in the respects mentioned.

VI.

The said Court erred in making and filing the following portion of finding No. II, as follows.

“That similar information was also given the said defendant by the said Los Angeles Gas and Electric Company” (referring to information as to the quality of the lamp-black fuel which would be furnished as to stability) “in the form of correspondence which passed between them pending said negotiations.”

It appears from the evidence that in none of the written correspondence passing between the Los Angeles Gas and Electric Company and the defendant was any mention made of what would be the character of the lamp-black fuel which [766] would be furnished and supplied to the defendant during the operation and testing of its said apparatus as to tensile strength, or stability or solidity; but all of the written correspondence referring to said lamp-black was confined solely to the discussion of the chemical constituency of said lamp-black and to its moisture content.

The evidence is insufficient to support the said finding in the respects mentioned.

VII.

The Court erred in making and filing the following portion of finding No. II, as follows:

"That all knowledge of the defendant with respect to the conditions at the plant of said Los Angeles Gas and Electric Company and of the character and quality of said fuel was obtained as above set forth."

It appears from the evidence that B. S. Pederson, agent of the said defendant, had for several years prior to April, 1907, resided on the Pacific Coast, and was familiar with the by-product of oil-gas manufacture, known as lamp-black; and from the written correspondence introduced in evidence which passed between the parties to the contract, it is shown that the defendant company, through its agent, Mr. Pederson, obtained information as to the gas-making qualities and character of lamp-black, as a by-product of oil-gas manufacture, from sources other than the information received from the agents of the Los Angeles Gas and Electric Company, and from the briquet samples supplied by the said Los Angeles Gas and Electric Company to the defendant. [767] And the evidence shows that before the defendant was willing to enter into the contract of April 8th, 1907, it received from and acted upon information from Mr. Pederson as to his own opinion and knowledge of the character and value of lamp-black as a fuel for water-gas manufacture.

The evidence is insufficient to support said finding in the respect mentioned.

VIII.

The Court erred in making and filing the following portion of finding No. II, as follows:

“Defendant relied thereon” (information received from the Los Angeles Gas and Electric Company, and the samples of lamp-black briquets furnished by said company to defendant) “and entered into the said contract in reliance upon the information thus obtained, and as above set forth.”

It appears from the evidence that the defendant entered into the contract of April 8th, 1907, relying only partially upon the information obtained by its agents from the Los Angeles Gas and Electric Company. The evidence further shows that before the defendant company would consent to enter into the contract of April 8th, 1907, it desired to obtain, and did obtain, from its agent, B. S. Pederson, a vast amount of information which he had gained through his experience as their representative of the Pacific Coast from sources other than that of the Los Angeles Gas and Electric Company. [768]

The evidence is insufficient to support the said finding in the respects mentioned.

IX.

The Court erred in making and filing the following portion of finding No. IV as follows:

That subsequent to April 8th, 1907, and prior to July 12th, 1909, “said defendant claimed that the said apparatus was completed in accordance with said contract.”

It appears from the evidence that at no time between the 8th day of April, 1907, and July 12th, 1909,

did the defendant claim or assert in writing or orally to the Los Angeles Gas and Electric Company, or to any other person, that the said apparatus was completed in accordance with said contract. To the contrary, the evidence shows that at no time prior to the said 8th day of April, 1907, did the said apparatus ever produce as much as 2,000,000 cubic feet of gas per 24 hours, and that the balance of the purchase price, payable within 35 days after the completion of the said apparatus, was never requested of the Los Angeles Gas and Electric Company by the defendant.

The evidence is insufficient to support the said finding in the respect mentioned. [769]

X.

The Court erred in making and filing the following portion of finding No. IV as follows:

“It has at all times been claimed by the defendant herein that said company” (Los Angeles Gas and Electric Company) “did not fully or at all perform said contract in some of the substantial particulars thereof.”

It appears from the evidence that at no time prior to the 12th day of July, 1909, did the defendant complain, or even claim or assert that the said Los Angeles Gas and Electric Company had, in any respect or at any time, failed to perform all the conditions and obligations upon its part to be performed under said contract of April 8th, 1907. On the contrary, the evidence shows that the said apparatus of the defendant had, at all times prior to the said 12th day of July, 1909, failed without any fault on the part of the Los Angeles Gas and Electric Company, to at-

tain any of the fuel economies or the capacity to produce even 2,000,000 cubic feet of gas per day of 24 hours, as provided for in said contract of April 8th, 1907; and that the said defendant did not, at any time, attribute the said failure of the said apparatus to any act or fault upon the part of the Los Angeles Gas and Electric Company, to perform its obligations under said contract of April 8th, 1907.

The evidence is insufficient to support the said finding in the respects mentioned. [770]

XI.

The Court erred in making and filing finding No. V as follows:

"With respect to the issues raised by the allegations of the eighth paragraph of the complaint to the effect that after the installation and completion of the extended carbureter superheater water-gas apparatus, provided for in the said contract of April 8th, 1907, tests of the said apparatus were thereafter made and to the effect that said apparatus never operated fully or completely or successfully or in any way approached or fulfilled the guaranties contained in the said contract, in the particulars set forth in the said eighth paragraph of said complaint and the denials of the said allegations in the answer of the defendant herein, the Court finds that a controversy arose between the said Los Angeles Gas and Electric Company and the defendant as to whether or not tests of the same were made, and whether or not the said apparatus did comply with the said guaranties; and at the trial of this cause it was agreed on behalf of both parties to this suit that

the issues raised by the said allegations were not material to this controversy, and no evidence was offered thereon."

It appears from the evidence that the plaintiff repeatedly throughout the trial of this case, attempted and endeavored to show and prove that at all times prior to the 12th day of July, 1909, the defendant failed to bring its said water-gas apparatus to the operative efficiencies set forth in said contract of April 8th, 1907, and that the trial Court refused at all times to receive said evidence in evidence upon the objection interposed by the defendant, and not by reason of any agreement upon the part of the plaintiff that [771] said evidence was not material to this controversy.

The evidence is insufficient to support the finding in the respects mentioned.

XII.

The Court erred in making and filing the following portion of finding No. XI as follows:

The said apparatus of the defendant was "not in operation on the 14th, 15th and 16th days of March, 1910, except for an inconsiderable period on the 14th and 16th of March, 1910."

It appears from the evidence that the apparatus of the defendant was in operation continuously from the 10th to the 30th of March, 1910, inclusive. The evidence further shows that such time as was taken by the defendant on the 14th, 15th and 16th of March, 1910, for the purpose of cleaning out the checker-work of said apparatus is, according to gas-making practice, deemed part of the operation of a

water-gas apparatus, although during such time the machine was not actually producing gas.

The evidence is insufficient to support the finding in the respects mentioned. [772]

XIII.

The Court erred in making and filing the following portion of finding No. XI as follows:

"It is not true that the defendant notified plaintiff that the test was ended at that time" (March 30th, 1910, at 6 o'clock A. M.)

It appears from the evidence that the defendant did notify the plaintiff that it had concluded its test of the said water-gas apparatus on the 30th day of March, 1910, at 6 o'clock A. M. The evidence shows that prior to the commencement of said final test on the 10th day of March, 1910, that the defendant notified the plaintiff in writing on the 28th day of February, 1910, as shown by Plaintiff's Exhibit 16, that on the morning of March 10th, 1910, the defendant would "begin the final 20-day test of the water-gas apparatus now at your plant, as provided for in the contract between your company and the Western Gas Construction Company, dated July 12th, 1909," that at 6 o'clock A. M. on said 10th day of March, 1910, the defendant did commence the final test and operation of said apparatus and continued the same for the next twenty days, consecutively, and did, of its own accord, on the 30th day of March, 1910, at 6 o'clock A. M. cease operation of said water-gas apparatus; that at said time the plaintiff did have on hand at said apparatus the necessary fuel, labor and other material to have enabled defendant to have

continued the operation of said apparatus had it so desired; that on said 30th day of March, 1910, within a few hours after said 6 o'clock A. M. of said day, the representative of the defendant presented himself at the office of the said Los Angeles Gas [773] and Electric Corporation, and stated that the said defendant had completed said final test of said apparatus.

The evidence is insufficient to support the finding in the respect mentioned.

XIV.

The Court erred in making and filing the following portion of finding No. XI as follows:

"Defendant did, then and there" (March 30th, 1910) "offer to proceed with the test of the said apparatus for any reasonable number of days for the purpose of demonstrating the actual capacity of said apparatus."

It appears from the evidence that the defendant did not, on said March 30th, 1910, offer to proceed with the test of said apparatus for any reasonable number of days, for the purpose of demonstrating the actual capacity of said apparatus. On the contrary, the evidence shows that after ceasing the operation of said apparatus on the 30th day of March, 1910, the representative of the defendant stated to the plaintiff that the apparatus was in such a condition that the generator head had to be reinforced by new I-beams, as the same was leaking, that the carbureter and superheater had to be entirely rechecked and lined with bricks, and various other changes made before the operation of said

apparatus could continue. And the evidence shows that the only representation made by the defendant of its willingness to continue the operation of said apparatus was an expression of their willingness to so continue if the plaintiff would allow the defendant time to make all of the said [774] changes and repairs upon said apparatus, and that then the defendant would be glad to make another demonstration of the said apparatus; but no offer was made by the defendant to immediately continue the operation of said apparatus.

The evidence is insufficient to support the finding in the respects mentioned.

XV.

The Court erred in making and filing the following portion of finding XI, as follows:

Defendant, "offered to correct any defects in said apparatus which had resulted during the operation of the same."

It appears from the evidence that on the 30th day of March, 1910, the defendant offered to correct any defects which had resulted in said apparatus during its operation solely upon the condition and agreement upon the part of the plaintiff, that it would then and there accept the said apparatus, or that it would permit the defendant to commence to make another and additional test of said apparatus.

The evidence is insufficient to support the finding in the respects mentioned.

XVI.

The Court erred in making and filing the following portion of finding No. XI, as follows:

The defendant at said time offered "to make another test thereof."

It appears from the evidence that the defendant did not, at said time, to wit, March 30th, 1910, offer to make another test of said apparatus, but, on the contrary, the [775] evidence shows that the defendant's offer to operate said apparatus was made contingent upon the defendant being given the opportunity and time to make certain and extensive repairs to defects which had resulted in the final test of said apparatus, and that at said time, the defendant was neither able to, willing or desirous to continue the operation or make another test of said apparatus until some future time, at which time said extensive repairs on said apparatus would have been made.

The evidence is insufficient to support the finding in the respects mentioned.

XVII.

The Court erred in making and filing the following portion of finding No. XII, as follows:

"It is not true that said apparatus is or was of no value to plaintiff by reason of its failure to have produced on an average of not less than 2,000,000 cubic feet of gas for each day of the said period; nor because of its failure during said period to consume 35 pounds or less of lamp-black fuel per thousand cubic feet of gas made or for any other cause."

It appears from the evidence that the said apparatus of the defendant is and was of no value to the plaintiff by reason of its failure to produce on an average of not less than 2,000,000 cubic feet of gas

per day of 24 hours, and because of its failure to produce gas with a consumption of not more than 35 pounds of lamp-black per thousand cubic feet of gas made, and by reason of its failure to produce gas [776] having a candle-power of not less than 20 candles.

The evidence shows that the cost of labor to operate the defendant's water-gas apparatus is constant, regardless of the amount of gas produced by said apparatus, and that the smaller the generating capacity of said apparatus the more it would cost the plaintiff for labor to generate each thousand cubic feet of gas produced by it.

The evidence further shows that lamp-black fuel, such as was furnished to the defendant by the plaintiff, has a ready sale in the market of the city of Los Angeles at \$9 to \$10 per ton, and that the failure of such apparatus to produce gas with a consumption of not exceeding 35 pounds of lamp-black per thousand cubic feet of gas made, would have resulted in said apparatus consuming, based upon its rate of consumption of lamp-black fuel during said test from March 10th to March 30th, 1910, of about \$10,000 worth of lamp-black more per year than the said apparatus would have consumed had it developed a capacity to produce gas, using not more than 35 pounds of lamp-black fuel for each one thousand cubic feet of gas produced.

And the evidence further shows that the failure of said apparatus to produce gas having a candle-power not less than 20 candles would necessitate the plaintiff increasing the candle-power of the oil-gas pro-

duced by its other sets, which could only be done at a considerable cost to the plaintiff, for this must be done through a process of mixing the two gases and thereby raising the candle-power of the gas produced in the defendant's apparatus to a marketable candle-power.

The evidence is insufficient to support the finding in the respects mentioned. [777]

XVIII.

The Court erred in making and filing the following portion of finding No. XII, as follows:

"The Court finds that it is not true that the failure on the part of said apparatus during said period to produce the average quantity of gas above referred to, with the fuel consumption per thousand cubic feet above specified was without any fault on the part of the plaintiff."

It appears from the evidence that the failure on the part of said apparatus of the defendant, during said period from March 10th to March 30th, 1910, to produce the average quantity of gas referred to in the contract of July 12th, 1909, with a fuel consumption per thousand cubic feet of gas made, specified therein, was without any fault on the part of the plaintiff.

It appears from the evidence, and was admitted by the defendant, that in all respects, except as to an alleged failure on the part of the plaintiff, to supply the defendant during the operation of said apparatus from March 10th to March 30th, 1910, with lamp-black fuel of greater stability and tensile strength than that possessed by the lamp-black fuel actually

furnished to the defendant, the plaintiff at all times and in every respect fully performed each and every condition and obligation on its part to be performed under the said contract of July 12th, 1909. [778]

The evidence shows, as is hereinafter in this Assignment of Errors more particularly and fully alluded to, that the lamp-black fuel furnished by the plaintiff during said final test of said apparatus, was at all times lamp-black fuel such as was specified and provided for in the said contract of July 12th, 1909; that the tensile strength and stability of the lamp-black fuel furnished to the defendant during said final test of said apparatus was superior to and greater than that of any lamp-black fuel ever furnished or supplied to the defendant for the operation of its said apparatus since the 8th day of April, 1907; that said lamp-black fuel, so supplied to the defendant during said test, was lamp-black fuel of the exact quality and character that the defendant and the Los Angeles Gas and Electric Company had in mind and contemplated using at the time said contract of July 12th, 1909, was entered into.

The evidence is insufficient to support the finding in the respects mentioned. [779]

XIX.

The Court erred in making and filing the following portion of finding No. XII, as follows:

“That there never was a test of said apparatus under the conditions prescribed by the said contract.”

It appears from the evidence that the test and operation of the said apparatus of the defendant,

from March 10th to March 30th, 1910, inclusive, was a final test of said apparatus under the conditions prescribed by the contract of July 12th, 1909, that on the 9th day of March, 1910, the defendant notified the plaintiff, in writing, that at 6 o'clock A. M. on March 10th, 1910, it would commence the final twenty-day test of said apparatus, as provided for in said contract, and that in pursuance of said notification, the defendant did, on March 10th, 1910, commence the final test of said apparatus and did prosecute the same thereafter for twenty consecutive days until March 30th, 1910, at 6 o'clock A. M., at which time the defendant did, of his own accord, cease to operate the said apparatus, and that during said test, the plaintiff at all times furnished and supplied to the defendant, fuel and other operative conditions in full compliance with the obligations on its part to be performed under and by virtue of the contract of July 12th, 1909, and in all other respects complied with the said contract.

The evidence is insufficient to support the finding in the respects mentioned. [780]

XX.

The Court erred in making and filing the following portion of finding No. XII as follows:

"The failure to test said apparatus, as provided in said contract, was due to the fault of the plaintiff."

The evidence shows that there was no failure to test said apparatus, as provided in said contract of July 12th, 1909, through or due to any fault of the plaintiff. On the contrary, the evidence shows that

from March 10th to March 30th, 1910, a final test was had of said apparatus, such as was provided for under the contract of July 12th, 1909, and that during said final test of said apparatus, the plaintiff furnished and supplied to the defendant, at all times during said test, fuel and operative conditions such as were required of it under the said contract of July 12th, 1909, and in all other respects, performed all the conditions and obligations upon its part to be performed under said contract.

The evidence further shows that prior to the commencement of the operation of said apparatus, on the 10th day of March, 1910, the defendant notified the plaintiff, in writing, that it would commence the final test of the said apparatus on March 10th, 1910; that at said time the defendant did commence the final test of said apparatus and concluded the same on the 30th day of March, 1910. The evidence shows that prior to the commencement of said final test on March 10th, 1910, the defendant informed the plaintiff that all of the conditions furnished by the plaintiff for said test were perfectly satisfactory to the defendant, and notified the plaintiff that all of the fuel which plaintiff had on hand for the purpose of supplying the defendant during said test was [781] satisfactory to the defendant, and such fuel as was called for under the contract of July 12th, 1909.

The evidence is insufficient to support said finding in the respects mentioned.

XXI.

The Court erred in making and filing the follow-

ing portion of finding No. XIII as follows:

"It is not true that said apparatus was in a dilapidated condition" (at the time it ceased operating on March 30th, 1910).

It appears from the evidence that on the 30th day of March, 1910, the said apparatus of the defendant was in a dilapidated condition; that the charging floor of said apparatus was loose, and was in places raised and bulged out due to the expansion of the top of the generator; that the top of the generator was in a leaky condition, due to insufficient reinforced support, which would necessitate removing the entire top of the generator and installing large I-beams as supports thereof; that one of the most important valves connecting the generator with the carbureter was installed in a temporary and unsatisfactory manner; that a large quantity of the brick work in the superheater had melted and fallen down, and that all of the remaining brick work in the superheater and carbureter was so covered and clogged with carbon that before the apparatus could be further operated it would be necessary to remove all of the bricks in said superheater and carbureter, to reline the same and correct all of the defects as above set forth; that such changes would necessitate the expenditure of a large sum of money, and would consume considerable time.

The evidence is insufficient to support the finding in the respects mentioned. [782]

XXII.

The Court erred in making and filing the following portion of finding No. XIII as follows:

"All of said defects could readily have been corrected" (referring to defects existing in said apparatus on March 30th, 1910).

It appears from the evidence that the defects existing in said apparatus on March 30th, 1910, could only be remedied by the expenditure of a large amount of money and several weeks of labor.

The evidence is insufficient to support the finding in the respect mentioned.

XXIII.

The Court erred in making and filing that portion of finding XIII, as follows:

That the said defects were "conditions not infrequently resulting from the operation of such apparatus in the natural and ordinary course of operation."

It appears from the evidence that in January and February of 1910, the defendant expended about \$8,000 in putting its said apparatus in perfect working order, and that at said time all of the brick work in said apparatus was in a perfect and clean condition; that from the 14th to the 16th of March, 1910, the defendant ceased making gas in its said apparatus, and did expend said time in cleaning [783] out the brick work in its said apparatus; and that on the 30th day of March, 1910, the brick work in said apparatus was so choked and burned that the apparatus could not be further operated without taking out all of the brick work in said apparatus and relining the same and reinforcing the top of the generator and making many other repairs; that in all the gas-generating sets operated by the plaintiff at its plant it was only customary to shut down said plants once

a year for the purpose of recheckering or relining the same with new brick, and it is not a natural or usual thing, but, on the contrary, it is a most unusual requirement for an apparatus to require relining and recheckering with bricks within a period of three or four months.

Furthermore there was no evidence of any apparatus ever operated by the plaintiff or the defendant requiring the reinforcement of the top of the generator, as a result of its operation, nor any evidence that temporary or imperfect valves is a condition resulting in the natural and ordinary operation of such water-gas apparatus.

The evidence is insufficient to support the finding in the respects mentioned.

XXIV.

The Court erred in making and filing the following portion of finding No. XIII as follows:

“The defendant did offer to correct all of said imperfections” (existing in said apparatus on March 30, 1910).

It appears from the evidence that the offer of the defendant to correct the imperfections existing in its said [784] apparatus on March 30th, 1910, was made contingent upon the acceptance of said apparatus by the plaintiff or the agreement upon the part of the plaintiff to grant it another and additional test of said apparatus.

The evidence is insufficient to support the said finding in the respect mentioned.

XXV.

The Court erred in making and filing the following

portion of finding No. XIII as follows:

The defendant did offer "to restore the said apparatus so that the same would be in first class order if the said plaintiff would permit the said work to be done and would accept said apparatus or permit a test of the same under the terms and provisions of the contract, or would permit an operation or test of the same under the conditions provided in the contract for any reasonable period that might be desired by plaintiff."

It appears from the evidence that the only offer made by the defendant to repair the dilapidated and imperfect condition of said apparatus after the 30th of March, 1910, was an offer to repair the same either upon the agreement upon the part of the plaintiff to accept said apparatus and pay therefor the purchase price, or an agreement upon the part of the plaintiff to grant another and additional test of said apparatus.

The evidence is insufficient to support the finding in the respect mentioned. [785]

XXVI.

The Court erred in making and filing the following portion of finding No. XIII as follows:

"Plaintiff did not fully or completely perform each and all the conditions upon its part under said contracts to be performed."

It appears from the evidence that the plaintiff did, at all times, fully and completely perform all of the conditions upon its part to be performed under said contract. The evidence shows that, except with respect to the claim of the defendant, urged during the

trial, that the lamp-black fuel furnished by the plaintiff during the final test of said apparatus did not possess the tensile strength and stability required of it under the contract of July 12th, 1909, the defendant admitted that the plaintiff had at all times fully and completely performed all the conditions on its part to be performed under said contract of July 12th, 1909. And the evidence further shows that all of the lamp-black fuel which was furnished by the plaintiff during the final test of said apparatus was lamp-black fuel of the kind and character called for and provided in said contract of July 12th, 1909.

The evidence is insufficient to support the finding in the respects mentioned. [786]

XXVII.

The Court erred in making and filing the following portion of finding No. XIII as follows:

That the plaintiff "failed to perform its obligations under said contracts in the particulars herein set forth."

The findings show that the particulars to which the above portion of the finding refers was the alleged failure on the part of the plaintiff to furnish defendant with lamp-black fuel, possessing tensile strength and stability such as the defendant claims was required under the contract of July 12th, 1909. But, it appears from the evidence, that the lamp-black fuel furnished and supplied by the plaintiff to the defendant was, at all times, lamp-black fuel of the kind and character contracted for under said contract of July 12th, 1909; and that, as to the lamp-black fuel furnished to the defendant by the plain-

tiff during the final test of said apparatus from March 10th to March 30th, 1909, the defendant had examined the said fuel prior to the commencement of said test, and informed plaintiff, in writing, that the same was satisfactory to the defendant.

The evidence is insufficient to support the finding in the respects mentioned. [787]

XXVIII.

The Court erred in making and filing the following portion of finding No. XIV as follows:

“The allegations of the 22d paragraph of the complaint are not true.”

The allegations of the 22d paragraph of the complaint are as follows:

“That, by reason of the failure and refusal of defendant to return to plaintiff said sum of Twenty-six Thousand Eight Hundred Twenty-three and 45/100 Dollars (\$26,823.45), and to remove said apparatus from plaintiff’s premises, as aforesaid, plaintiff has been damaged in the sum of Twenty-eight Thousand Three Hundred Twenty-three and 45/100 Dollars (\$28,323.45).”

It appears from the evidence that the plaintiff is and was damaged to the extent of \$28,323.45 by reason of the failure and refusal of the defendant to return to the plaintiff the sum of \$26,823.45, and to remove the said apparatus of the defendant from the plaintiff’s premises.

The evidence shows that under and by virtue of the contract of July 12th, 1909, the defendant agreed to return to plaintiff said sum of \$26,823.45, if, during the final twenty-day test of said apparatus, as under

said contract provided, it failed to bring its said apparatus to an average gas-making capacity, during said final test, of at least two million cubic feet per day, using not more than 35 pounds of lamp-black fuel containing not more than 10 per cent of moisture per thousand cubic feet of gas made, and to produce a good, commercial gas of not less than 20 candle-power.

It appears from the evidence that from the 10th to the 30th of March, 1910, the defendant had made such twenty-day final test of said apparatus, as in said contract provided, and that during said test of said apparatus, without any fault, [788] on the part of the plaintiff, the said apparatus failed to produce an average of at least two million cubic feet of gas per day of 24 hours; that, during said test, said apparatus did consume more than 39 pounds of carbon, containing less than 10 per cent of moisture, for each one thousand cubic feet of gas made; and that said apparatus, did not, during said test produce gas of an average candle-power of twenty candles.

The evidence further shows that the plaintiff, immediately after the 30th day of March, 1910, demanded of the defendant that it immediately return to the plaintiff the sum of \$26,323.45; and requested that the defendant remove from the plaintiff's premises its said apparatus; that the defendant has at all times refused to remove its said apparatus, and that the reasonable cost of removing the same is \$2,000; that by reason of the failure of the defendant to pay the plaintiff the said sum of \$26,323.45, and to remove its said apparatus from the premises of the plaintiff,

the plaintiff has been damaged in the sum of \$28,323.45.

The evidence is insufficient to support the finding in the respects mentioned. [789]

XXIX.

The Court erred in making and filing the following portion of finding No. XVI as follows:

"The defendant did perform the obligations undertaken by it in said contract."

It appears from the evidence that the defendant did not perform the obligations undertaken by it under its contract of April 8th, 1907, or under its contract of July 12th, 1909. On the contrary, it appears from the evidence that prior to July 12th, 1909, the defendant had, at all times, failed to bring its said apparatus to a gas-making capacity of at least 2,000,000 cubic feet of gas per day of 24 hours; or to bring its apparatus to a capacity of producing one thousand cubic feet of gas, using not more than 35 pounds of lamp-black fuel, containing not more than 10 per cent of moisture; or to produce with its said apparatus, a gas having a candle-power of not less than twenty candles; and that said failure on the part of the defendant was without any fault on the part of the Los Angeles Gas and Electric Company.

It further appears from the evidence that from the 10th day of March to the 30th of March, 1910, inclusive, the defendant did make a final test of its said water-gas apparatus, as contemplated and provided for under the contract of July 12th, 1909, and that during said test the defendant, without any fault on the part of the plaintiff, failed to bring its said ap-

paratus to an established gas-making capacity, as in said contract provided, of at least 2,000,000 cubic feet of gas per day of 24 hours; and failed to produce one thousand cubic feet of gas, using not more than 35 pounds of lamp-black fuel, containing not more than ten per cent of moisture; [790] and to produce a good, commercial gas of not less than twenty candle-power.

The evidence shows that during said final test of said apparatus, the said apparatus did not produce more than 1,800,000 cubic feet of gas per 24 hours, and did not produce gas with a consumption of less than 39 pounds of lamp-black fuel per thousand cubic feet of gas, or produce a good, commercial gas of a candle-power greater than 19 candles; that at the termination of said test, the said apparatus of the defendant was in a dilapidated and defective condition, and not in such a condition as would have enabled it to be further operated without an expenditure of considerable money and time for the purpose of repairing its many defects.

The evidence is insufficient to support the finding in the respects mentioned. [791]

XXX.

The Court erred in making and filing the following portion of finding No. XVI, as follows:

“Plaintiff did not perform the obligations undertaken by it in said contracts in this: that it did not, during said test, furnish lamp-black fuel of the quality called for by said contract.”

It appears from the evidence that the lamp-black fuel furnished and supplied by the plaintiff to the

defendant during the final test of said apparatus from March 10th to March 30th, 1910, and at all other times, was lamp-black fuel of the quality, kind and character called for in said contract of July 12th, 1909; that the plaintiff did not fail to perform the obligations undertaken by it under said contract of July 12th, 1909, by reason of the quality of lamp-black fuel furnished and supplied by it to the defendant during the said final twenty-day test of said apparatus. The evidence shows that neither the Los Angeles Gas and Electric Company or the plaintiff, in their contracts of April 8th, 1907, and July 12th, 1909, or at any other time, agreed to furnish and supply to the defendant lamp-black fuel of a chemical or physical quality or character different from that possessed by the lamp-black fuel furnished to the defendant during the said final twenty-day test of said apparatus; that between April 9th, 1908, and July 12th, 1909, the Los Angeles Gas and Electric Company had furnished to and the defendant company had used in its water-gas apparatus, thousands of tons of bricked lamp-black fuel of the same chemical composition and physical characteristics as possessed [792] by the lamp-black fuel furnished by the plaintiff and the defendant during the said final twenty-day test of said apparatus in March, 1910, and that at no time prior to July 12th, 1909, or at no time thereafter had the defendant been supplied with lamp-black fuel having a greater tensile strength or stability, or of superior chemical or physical composition than that possessed by the lamp-black fuel furnished to the defendant during the said final

twenty-day test of said apparatus.

The evidence further shows that at the time of entering into said contract of July 12th, 1909, the Los Angeles Gas and Electric Company was, with the knowledge of the defendant, the only concern in the United States producing lamp-black fuel in the form of brick, and that at said time and at all times thereafter, the Los Angeles Gas and Electric Company and the plaintiff used in the manufacture of said bricks the best machinery procurable for such purpose, and did manufacture bricks with as great a tensile strength and stability as was possible to manufacture the same; that the defendant was at said time familiar with the character of the lamp-black bricks which the Los Angeles Gas and Electric Company had in the past furnished to it and which it was possible for the said company and plaintiff to furnish to it in the future; that at the time of entering into said contract of July 12th, 1909, the Los Angeles Gas and Electric Company did not inform the defendant, or represent to it, or did the defendant request of the Los Angeles Gas and Electric Company that the fuel which would be furnished to it under said contract of July 12th, 1909, should be of a chemical constituency, or possess a greater tensile strength or solidity than that possessed by the lamp-black bricks theretofore furnished to the defendant, or different form, or greater [793] than that actually possessed by the lamp-black fuel which was supplied to the defendant during the final test of said apparatus from the 10th to the 30th of March, 1910.

The evidence further shows that in December, 1909, the plaintiff had accumulated a supply of about 3,000 tons of bricked lamp-black fuel, which it proposed to furnish to the defendant during the final test of the said apparatus, and so informed defendant; that the defendant did thereupon examine said fuel, and notified plaintiff orally and in writing that the same was satisfactory to the defendant for its use during the proposed final twenty-day test of said apparatus; that plaintiff did thereafter use every effort and protection to keep said fuel in the best possible condition *possible*, and the defendant was, at all times prior to the 10th day of March, 1910, aware of the methods taken by the plaintiff in caring for and protecting the said fuel, and that the defendant, at no time prior to the 20th day of March, 1910, at which time it was in the midst of said twenty-day test, informed the plaintiff or claimed that the lamp-black fuel furnished by the plaintiff did not have the tensile strength and stability required of the lamp-black fuel under the contract of July 12th, 1909.

The evidence shows that all of the lamp-black fuel furnished and supplied by the plaintiff to the defendant, during the said twenty-day final test of said apparatus was lamp-black fuel of the character provided in said contract of July 12th, 1909, and was lamp-black fuel of the best chemical composition and possessing the greatest tensile strength and solidity that it was possible for the plaintiff, or any other person in the world at said time to produce commercially; [794] that it was at said time impossible for the plaintiff or any other person to have sup-

plied the defendant with superior lamp-black brick fuel.

The evidence further shows that all of the lamp-black fuel furnished and supplied to the defendant by the plaintiff during said final twenty-day test of said apparatus was equal to and better than any lamp-black fuel ever theretofore furnished or supplied to the defendant by the Los Angeles Gas and Electric Company or the plaintiff.

The evidence is insufficient to support the finding in the respects mentioned. [795]

XXXI.

The Court erred in making and filing the following portion of finding No. XVI, as follows:

"The lamp-black fuel furnished defendant during said test contained from 10 to 15 per cent of impurities in the form of tar or other hydrocarbons and a small percentage of noncombustible ash."

It appears from the evidence that the tar, hydrocarbons and noncombustible ash, occurring in the lamp-black fuel furnished by the plaintiff to the defendant, did not constitute impurities in said lamp-black fuel; but, on the contrary, the evidence shows that lamp-black produced in the manufacture of gas by petroleum oil necessarily possesses a certain percentage of tar, hydrocarbons and noncombustible ash, and that in the trade and art of gas manufacture, such elements are considered as ever-present constituents of lamp-black as known in the trade of gas manufacture.

The evidence further shows that the lamp-black briquets furnished to the defendant, and analyzed

prior to April 8th, 1907, contained the same constituents as did the lamp-black fuel furnished to the defendant for its final test in March, 1910; that the defendant, prior to April 8th, 1907, and at all times thereafter, had knowledge of the exact chemical constituency of said lamp-black, and used such term in said contract of April 8th, 1907, and July 12th, 1909, with full knowledge and understanding that the lamp-black provided for in said contract was not and would not be chemically pure carbon.

The evidence is insufficient to support the finding in the respects mentioned. [796]

XXXII.

The Court erred in making and filing the following portion of finding No. XVI, substantially and in effect as follows:

The lamp-black furnished by the plaintiff to the defendant during said final test was not fuel of the kind and character specifically provided for in the contract of July 12th, 1909.

It appears from the evidence that the lamp-black fuel furnished by the plaintiff to the defendant during said final test of said apparatus from March 10th to March 30th, 1910, was fuel of the kind and character specifically provided for in the contract of July 12th, 1909.

It further appears from the evidence that the defendant had, at no time prior to July 12th, 1909, seen or examined any lamp-black produced as a by-product of oil-gas manufacture, made in the form of an ordinary building brick, except such lamp-black as was bricked at the plant of the Los Angeles Gas and Elec-

tric Company, and that the said Los Angeles Gas and Electric Company was at said time, and at all times [797] thereafter, the only concern in the United States which produced and manufactured lamp-black bricks of the size and form of the lamp-black bricks supplied to the defendant in the operation of its water-gas set; that the Los Angeles Gas and Electric Company and the plaintiff at all times used in the manufacture of its lamp-black bricks the best and most efficient machinery known or procurable for such purposes, and there was no evidence that at any place in the United States lamp-black bricks were manufactured or produced, commercially, of a physical or chemical quality or character equal to or different from or better than those produced by the Los Angeles Gas and Electric Company and the plaintiff, and supplied to the defendant at all times for the operation of its said apparatus, and that between the 8th day of April, 1907, and the 12th day of July, 1909, the Los Angeles Gas and Electric Company had supplied to the defendant and the defendant had used in the operation of its water-gas set thousands of tons of lamp-black bricks, having a tensile strength and solidity less than the sample briquette furnished to the defendant prior to April 8th, 1907, and having a tensile strength not greater than the lamp-black bricks furnished to the defendant by the plaintiff between the period of March 10th to March 30th, 1910; and that at the time defendant entered into said contract of July 12th, 1909, it did not request of the Los Angeles Gas and Electric Company, nor even suggest, that the brick lamp-black fuel which

should be supplied to it under said contract should have a tensile strength or solidity equal to the sample briquet furnished to it prior to April 8th, 1907, or a tensile strength or solidity greater than or different from the lamp-black bricks used by the defendant between the said April 8th, 1907, and the 12th day of July, 1909. [798]

And the evidence further shows that the Los Angeles Gas and Electric Company did not at any time prior to the said 12th day of July, 1909, or on said date, or at any time thereafter represent to the defendant that the lamp-black fuel which would be supplied to it under said contract of July 12th, 1909, would have a tensile strength equal to the briquets furnished to the defendant prior to April 8th, 1907, or different from or greater than the tensile strength and solidity of the lamp-black bricks furnished and supplied to the defendant between the 8th day of April, 1907, and the 12th day of July, 1909, or a tensile strength or solidity greater than that actually possessed by the lamp-black bricks which were later supplied by the plaintiff to the defendant during the period from March 10th to March 30th, 1910, and that after said 12th day of July, 1909, and at various times up to the 10th day of March, 1910, the plaintiff furnished and supplied to the defendant thousands of tons of lamp-black brick fuel possessing a tensile strength and solidity not greater than that possessed by the lamp-black bricks theretofore furnished to the defendant and thereafter furnished to the defendant during the final test of said apparatus, and the defendant at no time prior to the 20th day of

March, 1910, claimed, suggested or even intimated that the lamp-black fuel furnished and supplied by the plaintiff or its assignor at any time prior thereto possessed a tensile strength or solidity, or physical quality different from that which the plaintiff or its assignor had, either in the contract of April 8th, 1907, or the contract of July 12th, 1909, agreed to furnish or supply to the defendant, but, on the contrary, the defendant had during the months following November, 1909, up to the first day of March, 1910, witnessed the production and storage by the plaintiff in its yards of 3,000 tons of [799] lamp-black bricks which the plaintiff stated to the defendant that it intended to furnish and supply to the defendant during the final test of its said apparatus, and which the defendant expected the plaintiff would furnish and supply to it at said time, and that it had the opportunity to, and did at various times examine such fuel and test the same, and did, in the latter part of December, 1909, inform the plaintiff in writing that said 3,000 tons of lamp-black brick fuel was satisfactory and would be suitable to the defendant as fuel for use during the final test of its said apparatus, under the contract of July 12th, 1909.

The evidence further shows that all of the fuel furnished by the plaintiff to the defendant was taken from said pile of 3,000 tons of lamp-black bricks which had theretofore been supplied to the defendant, and were all the lamp-black bricks furnished by the plaintiff to the defendant during the final test of said apparatus, and were lamp-black bricks of the best quality, both physically and chemically, that it was

possible for the plaintiff or any other person at said time to manufacture or produce.

The evidence is insufficient to support the finding in the respects mentioned.

XXXIII.

The Court erred in making and filing the following portion of finding No. XVI as follows:

The lamp-black bricks furnished by the plaintiff to the defendant during said final test had been treated in such a manner as to "leave voids therein."

[800]

It appears from the evidence that in the manufacture of lamp-black bricks small air-chambers necessarily are formed in said bricks; that it is impossible to manufacture the same without the presence of said air spaces occurring at times in the said bricks.

The evidence is insufficient to support the finding in the respect mentioned.

XXXIV.

The Court erred in making and filing the following portion of finding No. XVI as follows:

The said lamp-black bricks "had been insufficiently compressed."

There is no evidence that the lamp-black bricks furnished by the plaintiff to the defendant from March 10th to March 30th, 1910, were insufficiently compressed; but, on the contrary, it appears from the evidence that all of the said bricks were compressed to as high a degree as possible; that the plaintiff is the only person in the United States engaged in the manufacture of lamp-black bricks and that in

the production of the same the plaintiff used at all times the best possible machinery and methods; and no evidence was introduced during the trial of the production by anyone, or of the possibility of production, commercially, of lamp-black bricks compressed in any manner superior to the bricks produced by the plaintiff at said time and furnished to the defendant; that all of the lamp-black fuel furnished by the plaintiff to the defendant, during said final test, was compressed to a degree and in a manner not inferior to any lamp-black bricks ever theretofore furnished to the defendant by the plaintiff.

The evidence is insufficient to support the finding in the respect mentioned. [801]

XXXV.

The Court erred in making and filing the following portion of finding No. XVI as follows:

That said fuel furnished by the plaintiff to the defendant during said final test was "so unstable that they were not able to withstand, and did not withstand the jarring necessarily incident to handling the same for fuel purposes in such apparatus."

It appears from the evidence that all of the lamp-black fuel furnished by the plaintiff to the defendant was sufficiently stable to withstand the jarring necessarily incident to handling the same for fuel purposes in the defendant's apparatus. The evidence shows that practically every brick delivered by the plaintiff to the defendant during said test was delivered at the base of the fuel chute of the defendant's apparatus in the perfect form of a brick, and that thereafter the handling of said fuel was con-

ducted in such a manner as best suited the defendant, and entirely by its employees; that in handling said fuel, defendant carried the same to a great height in buckets, from whence it was dumped down into a bin in large quantities and from thence again dropped a great distance into the generator, which said handling necessarily resulted in the breaking up of a certain portion of the bricks; that the matter of handling said fuel was one lying solely in the power of the defendant, and that the defendant could have supplied the generator with fuel by the use of wheelbarrows and other devices which would practically have prevented any of the said bricks from breaking; that it is not unusual for lamp-black bricks to become broken in handling the same for fuel purposes in gas generators.

The evidence is insufficient to support the finding in the respect mentioned. [802]

XXXVI.

The Court erred in making and filing the following portion of finding No. XVI as follows:

"Notwithstanding the protest of the defendant during said test, plaintiff did furnish to the defendant bricks which had been and were being throughout the entire test subjected to external, artificial heat, or kiln-drying, for the purpose of driving out moisture therefrom."

It appears from the evidence that it is impossible to manufacture a lamp-black brick from crude lamp-black containing less than 15 to 20 per cent of moisture; that therefore, to the knowledge of the defendant, the plaintiff and its assignor at all times pro-

duced lamp-black bricks containing from 15 to 20 per cent of moisture when first made, and that all of said bricks were thereafter reduced in moisture content, either by drying the same in the sun or by means of artificial heat. The evidence shows that as early as December, 1909, the plaintiff had, in order to be able to furnish defendant with the best possible character of fuel for the final test of its apparatus, accumulated about 3,000 tons of lamp-black bricks, which it proposed to furnish to the defendant during the final test of said apparatus; and the plaintiff had, by means of exposing said bricks to the sun for several months succeeded in reducing all of said bricks to a moisture content of less than 10 per cent; that during said month of December, 1909, the plaintiff did inform the defendant of the purpose for which it intended to use said 3,000 tons of brick, and the defendant did thereupon examine said bricks, and stated to the plaintiff in writing that the same were satisfactory to it for use in said final test. The evidence shows that the plaintiff thereupon, at the suggestion of the defendant, covered said pile [803] of bricks with sheet iron and other substances to protect the same from the rains which occurred in the spring; that during January, February and March, 1910, there was a large and excessive rainfall in the city of Los Angeles, and that considerable portion of said 3,000 tons of brick, by reason of their physical character, and without any fault on the part of the plaintiff absorbed considerable moisture from the atmosphere so that by the latter part of February a large portion of said bricks were of a moisture content greater than

10 per cent; that, thereupon, plaintiff did at great expense, to the knowledge of the defendant and without any protest from said defendant, proceed to drive the excessive moisture from said bricks in the only possible manner, to wit, by repiling said bricks in the form of kilns and driving the moisture therefrom by means of artificial heat. The evidence shows that by employing said means the plaintiff did reduce the moisture content of all the said bricks furnished to the defendant during its said final test to a degree less than 10 per cent, and that by the 10th day of March, 1910, all of said bricks furnished to the defendant during said final test had been dried to a proper degree of moisture; that thereafter, plaintiff ceased to apply said artificial heat to the said bricks.

The evidence further shows that the defendant at no time made any objection to the manner in which the plaintiff had dried the said bricks, or to the character of said bricks after drying, until about the 20th day of March, 1910, at which time it was impossible for the plaintiff to furnish or supply defendant with bricks any different from those which it was supplying to it; that bricks dried by means of artificial heat, or kiln-dried, possess a tensile strength as great, if not greater than those bricks dried by means of the sun, and are in all other respects identical with lamp-black bricks dried by [804] means of natural sunlight.

The evidence is insufficient to support the finding of the Court in the respects mentioned.

XXXVII.

The Court erred in making and filing the following

portion of finding No. XVI as follows:

The plaintiff did furnish the defendant during said test bricks which were "unstable and easily disintegrated."

It appears from the evidence that all of the bricks furnished to the defendant by the plaintiff, during the final test, were as above set forth more particularly in our Assignment of Errors the most suitable bricks which were possible for the plaintiff or any other person to produce, commercially, and that the said bricks were of such stability as to withstand all the necessary handling of the same incident to the preparation and drying of said bricks, and the hauling of the same to its generator, and that any breakage that thereafter occurred in said bricks was due to the handling of the same by the defendant's agents; and that in the handling of the same by the defendant, said bricks were submitted to unusual and violent usage and handling, which caused a small portion of the same to become broken and disintegrated.

The evidence is insufficient to support the finding in the respects mentioned. [805]

XXXVIII.

The Court erred in making and filing the following portion of finding No. XVI as follows:

"Practically all of the bricks furnished to the defendant during said test were of such an unsubstantial character that great quantities of them were necessarily broken up and crumbled in the handling of them."

It appears from the evidence, as specified in the

last Assignment of Error, that the lamp-black bricks were not of an unsubstantial character and were not necessarily broken up or crumbled in the handling of them; and it further appears from the evidence that only a small portion of the bricks supplied to the defendant did crumble up during the handling of the same by the defendant.

The evidence is insufficient to support the finding in the respect mentioned. [806]

XXXIX.

The Court erred in making and filing that portion of finding No. XVI as follows:

“This crumbling and powdering took place to such an extent as that great quantities of fine pulverized and crumbled material unavoidably found its way into the generator, with the result that the fuel bed was packed and its efficiency largely impaired, and with the further result that excessive and extraordinarily large quantities of dust were blown over from the generator into the carbureter, and tended to form a deposit upon the brick work in the carbureter, and to materially retard its function and impair its capacity.”

It appears from the evidence that the reason why large quantities of fine carbon passed from the generator into the superheater was because the defendant's agent at the last moment before commencing the final test of said apparatus, contrary to the plan of operation outlined and contemplated by the defendant company's president and engineers, doubled the amount of air blast injected into the generator of said apparatus, and that said excessive air blast was

the reason why the large quantities of fine carbon were carried from the generator into the carbureter, and further, that the defendant [807] under its contract of July 12th, 1909, specifically agreed to increase the capacity of said apparatus by catching and handling such fine dust as was apt to pass from the generator to the carbureter. The evidence shows that the defendant, subsequent to July 12th, 1909, doubled the size of the generator that it had theretofore used, and that the engineers of the defendant company, in considering whether they had provided sufficient capacity for handling said fine dust, which is necessarily expected to pass from the generator into the carbureter, only contemplated upon the operator of said apparatus using one-half of the amount of blast which said operator actually subjected said generator to during said final test of said apparatus, and that it was by reason of the aforesaid acts of the defendant and not otherwise that such large quantities of dust were carried from the generator into the carbureter and resulted in the impairment of the operating capacity of said machine.

The evidence is insufficient to support the finding in the respects mentioned. [808]

XL.

The Court erred in making and filing the following portion of finding No. XVI as follows:

“Throughout said test plaintiff continued to supply bricks of the character above described, to wit, so entirely lacking in firmness and stability as that practically all of them broke more or less in handling.”

It appears from the evidence that only a small percentage of the lamp-black bricks actually placed by the defendant in its generator were broken, and that practically every brick delivered by the plaintiff to the defendant at the base of its fuel chute was in a perfect brick form.

It appears further from the evidence that all the lamp-black brick furnished by the plaintiff to the defendant were lamp-black bricks possessing as great a degree of firmness and stability as possible for them to possess, and that all of said bricks did possess such a degree of firmness and stability as was required under the contract of July 12th, 1909.

The evidence is insufficient to support the finding in the respects mentioned. [809]

XLI.

The Court erred in making and filing the following portion of finding No. XVI as follows:

“Great quantities” (of the bricks furnished by the plaintiff) “crumbled and pulverized to such an extent that at times more than one-third and almost constantly as much as 15% or 20% was screened out as waste.”

It appears from the evidence that the term “waste” used in the above finding refers to the fine carbon dust which the defendant abstracted from the lamp-black fuel by means of large slits and holes which it placed in its fuel chute leading to the generator; that the percentage of fine carbon which the defendant thus removed was material which would have made good fuel if used in said generator; and that the existence of said fine carbon was due almost entirely

to the rough and violent manner in which the defendant handled said lamp-black fuel after it was delivered to it by the plaintiff. The evidence shows that the amount of fine carbon which the plaintiff obtained in using the lamp-black fuel furnished to it by the plaintiff during the final test of said apparatus was not greater than that encountered by the defendant at all times prior thereto in the operation of said apparatus.

The evidence is insufficient to support the finding in the respects mentioned. [810]

XLII.

The Court erred in making and filing the following portion of finding No. XVI as follows:

“At least as much more” (of the waste) “unavoidably went into the generator with the serious detrimental effects above described.”

It appears from the evidence that only a very small percentage of said fine carbon went into the generator, and that the effect of the presence of said fine dust in the generator would not have been detrimental to the said apparatus had it not been for the fact that the defendant’s representative and operator used during the final test of said apparatus an air blast double in force to that which the defendant company had contemplated and designed that said apparatus should use and accommodate, and that by means of said excessive air blast a large portion of the fine carbon in the generator was blown from the generator into the carbureter before it could be consumed by the fire in the generator; and that such a condition was without any fault on the part of the plaintiff.

The evidence is insufficient to support the finding in the respect mentioned. [811]

XLIII.

The Court erred in making and filing the following portion of finding No. XVI as follows:

"In the operation of all gas apparatus it is customary and necessary" to shut down said apparatus at some regular interval for the purpose of burning out and cleaning out the apparatus.

It appears from the evidence that the contract of July 12th, 1909, between the defendant and the plaintiff's assignor did not contain any provision allowing the defendant to shut down its said apparatus for the purpose of burning out and cleaning out the same during the final test of said apparatus; but said contract, on the contrary, provided that during the final test of said apparatus, said machine should be operated for 20 consecutive days. It further appears from the evidence that while it is customary at the plaintiff's plant to cease making gas every 7 days in order to burn out and clean out the generator, that such practice is followed with such generators as are kept in steady operation throughout the entire year; that it is not customary, and should not have been necessary in the operation of a gas generator for a twenty-day test, such as was provided for in the contract of July 12th, 1909, to shut down said apparatus at any time during the twenty-day test for the purpose of burning out and cleaning out the same; and that said contract of July 12th, 1909, was entered into without any agreement, understanding or expectation that the said apparatus of the defendant

should be shut down at any time during said final test for such purpose.

The evidence does not support the finding in the respect mentioned. [812]

XLIV.

The Court erred in making and filing the following portion of finding, No. XVI as follows:

"A burning and cleaning out period of one day out of seven is a proper, practical and reasonable custom in the proper operation of such a water-gas set as is involved here."

It appears from the evidence that a burning out and cleaning out period of one day out of seven is not a proper, practical and reasonable custom in the proper operation of such a water-gas set as that possessed by the defendant under such a twenty-day test as was provided for in said contract of July 12th, 1909; that the burning out and cleaning out period of one day in seven is a custom peculiar to the plaintiff company, and is a custom used and adopted only in the operation of such apparatus as are kept in continuous operation throughout an entire period of twelve months.

It further appears from the evidence that the contract of July 12th, 1909, does not provide for any such shutting down period during the final twenty-day test of defendant's apparatus; and that such event was not contemplated even by the parties at the time said contract was entered into.

The evidence is not sufficient to support the finding in the respect mentioned. [813]

XLV.

The Court erred in making and filing the following portion of finding No. XVI as follows:

"The average quantity of gas produced per 24 hours during the seventeen days on which the apparatus was actually operated was slightly in excess of two million cubic feet per day."

It appears from the evidence that if the total amount of gas produced by said apparatus of the defendant from March 10 to March 30, 1910, is divided by a factor of 17, that the result would be an average of over 2,000,000 cubic feet per day; but the evidence shows that such portions of the 14th, 15th and 16th days of March, 1910, as was taken by the defendant to clean out its generator is, in gas-making practice, considered as part of the operating period of said apparatus, and that under the contract of July 12th, 1909, the average capacity of said apparatus of the defendant as demonstrated during its final test from the 10th to the 30th of March, 1910, is obtained only by dividing the total production of the gas produced during said period by a factor of 20.

The evidence is insufficient to support the finding of the Court in the respects mentioned. [814]

XLVI.

The Court erred in making and filing the following portion of finding No. XVI as follows:

"A test of 20 or more consecutive days was never had of the said apparatus."

It appears from the evidence that a test of 20 consecutive days was had of said apparatus as in said contract of July 12th, 1909, provided; that on the

9th day of March, 1910, the defendant notified the plaintiff in writing that at 6 o'clock A. M. on March 10th, 1910, it would commence the final 20-day test of its said apparatus, as provided for in said contract of July 12th, 1909, and that at 6 o'clock A. M., March 10th, 1910, the defendant did commence the final test of said apparatus, and did prosecute the same for the next 20 consecutive days, to wit, until 6 o'clock A. M., March 30th, 1910, at which time the defendant, of its own accord, ceased to operate said apparatus, and announced that it had completed the test of the same.

The evidence further shows that during said test and at all times the plaintiff had fully performed each and every obligation and condition upon its part to be performed under said contract of July 12, 1909, and had during the said final test of said apparatus furnished and afforded the defendant all the operative conditions and character of fuel required to be furnished by it under said contract of July 12th, 1909.

The evidence is insufficient to support the finding in the respects mentioned. [815]

XLVII.

The Court erred in making and filing the following portion of finding No. XVI, as follows:

"A test of 20 or more consecutive days was never had of the said apparatus with fuel of the character and quality provided to be furnished by the plaintiff to the defendant in the said contract."

It appears from the evidence that a test of 20 consecutive days, as provided for in said contract of July 12th, 1909, was had of the said apparatus of the de-

fendant in its operation from March 10th to March 30th, 1910, and that during said test said apparatus was furnished by the plaintiff with the character and quality of fuel which the plaintiff was obliged to furnish the defendant under the contract of July 12th, 1909.

It further appears from the evidence that prior to the commencement of said test the defendant notified the plaintiff in writing that all of the fuel which the plaintiff then had on hand, and which it later furnished to the defendant during said test was satisfactory to the defendant; that all the fuel furnished to the defendant during said test was fuel of the kind and character which the parties contracted should be furnished under the contract of July 12th, 1909.

In assignments of errors heretofore set forth, plaintiff has set forth other particulars more in detail in which the aforesaid finding of the Court is not supported by the evidence. All of the said particulars set forth in aforesaid mentioned assignments are made a part hereof with the same force and effect as if set forth herein.

The evidence is insufficient to support the finding in the respect mentioned. [816]

XLVIII.

The Court erred in making and filing the following portion of finding No. XVI, as follows:

“Nor was the test of the said apparatus carried on from the 10th to the 30th of March as aforesaid, such a test as the contract provided for.”

It appears from the evidence that the test of the said apparatus carried on from the 10th to the 30th of March, 1910, was such a test as the contract of

July 12th, 1909, provided for; that during said test plaintiff at all times fully performed all conditions and obligations upon its part to be performed, and did during such test furnish and supply to the defendant all such operating conditions and fuel as in said contract provided; that the defendant did at the commencement of said test announce to the plaintiff in writing that the said test was a final test of said apparatus as in said contract of July 12th, 1909, provided.

The assignment of errors heretofore set forth, addressed to findings of the Court similar in substance to the finding herein, which point out more in detail particulars in which the aforesaid finding is unsupported by the evidence, and all statements of evidence contained in the aforesaid assignment of errors are made a part hereof with the same force and effect as if set forth herein.

The evidence is insufficient to support the finding in the respect mentioned. [817]

XLIX.

The Court erred in making and filing the following portion of finding No. XVI as follows:

“Nor was the same such a test as would properly or fairly indicate or determine the capacity or economy of operation of said apparatus for 20 or more consecutive days, or as a permanent operating apparatus or otherwise.”

It appears from the evidence that the said final test of said apparatus was such a test as would and did fairly indicate and determine the capacity and economy of operation of said apparatus for 20 or more consecutive days, and its maximum capacity as

a permanent operating apparatus. The evidence shows that all of the operative conditions, and all the fuel and material furnished and supplied by the plaintiff to the defendant during said final test of said apparatus was fuel and were operative conditions such as were called for under the contract of July 12th, 1909; that at the commencement of said test the said apparatus of the defendant was in a proper condition; and that during said test the said apparatus had produced more gas with better fuel economies than it had at any time theretofore during any operation thereof; that during said test the plaintiff fulfilled each and all the conditions upon its part to be fulfilled under the contract of July 12th, 1909.

The evidence is insufficient to support the finding in the respects mentioned. [818]

L.

The Court erred in making and filing that portion of finding No. XVII, as follows:

“That during said test defendant repeatedly protested against the character of the bricks furnished.”

It appears from the evidence that prior to the commencement of said final test, the defendant notified the plaintiff in writing that the store of bricks which the plaintiff had on hand for use during said final test was satisfactory and would be acceptable to the defendant for use during said final test from the 10th to the 30th of March, 1910.

It further appears from the evidence that the defendant at no time protested against the character of the bricks furnished during said final test until at a time about the middle of the said test; that at said time the plaintiff did not have in its possession any

bricks of a character different from or better than those which it was supplying to the defendant at that time, and had theretofore supplied to it during said test, or at any other time.

The evidence is insufficient to support the finding in the respect mentioned. [819]

LI.

The Court erred in making and filing the finding that the plaintiff is not entitled to recover of the defendant the sum of \$28,323.45, or any part thereof.

It appears from the evidence that from March 10th to March 30th, 1910, the defendant made such a final test of its said apparatus as provided for in the contract of July 12th, 1909, and that during said test, and at all times, the plaintiff fully performed all the conditions and obligations on its part to be performed under said contract; that during said final test the said apparatus, without any fault on the part of the plaintiff, failed to produce for 20 consecutive days an average of at least 2,000,000 cubic feet of gas per 24 hours, and did, during said test, fail to produce gas with a consumption of not more than 35 pounds of lamp-black fuel, containing not more than 10 per cent of moisture, per thousand cubic feet of gas made; and that said apparatus during said final test failed to produce a good, commercial gas having an average candle-power of not less than twenty candles.

The evidence further shows that after the said test of said apparatus, the plaintiff demanded that the defendant pay to the plaintiff the sum of \$26,323.45, which the defendant has at all times refused to do; that plaintiff did at said time demand that the plain-

tiff remove its apparatus from the premises of said plaintiff, which the defendant at all times refused to do; that the reasonable cost of removing said apparatus was \$2,000, and that under and by virtue of the contract of July 12th, 1909, the plaintiff was entitled to recover from the defendant the said sum of \$28,323.45. [820]

LIII.

The Court erred in failing to find and decide that the plaintiff is entitled to judgment against the defendant in the sum of \$28,323.45.

It appears from the evidence that from March 10th to March 30th, 1910, the defendant made a final test of its said apparatus as provided for in the contract of July 12th, 1909; that during said test, and at all times, the plaintiff fully performed all the conditions and obligations on its part to be performed under said contract. The evidence shows that during said final test, the said apparatus, without any fault on the part of the plaintiff, failed to produce for twenty consecutive days an average of at least 2,000,000 cubic feet of gas per 24 hours; and did, during said test, fail to produce gas with a consumption of not more than 35 pounds of lamp-black fuel containing not more than 10 per cent of moisture per thousand cubic feet of gas made, and that said apparatus during said final test failed to produce a good, commercial gas having an average candle-power of not less than twenty candles.

The evidence further shows that after the said test of said apparatus, the plaintiff demanded that the defendant pay to the plaintiff the sum of \$26,323.45,

which the defendant has at all times refused to do; that plaintiff did at said time demand that the defendant remove its said apparatus from the premises of said plaintiff, which the defendant at all times has refused to do; and that the reasonable cost of removing said apparatus was \$2,000, and under and by virtue of the contract of July 12th, 1909, the plaintiff was entitled to recover from the defendant the said sum of \$28,323.45. [821]

LIII.

The Court erred in failing to find and decide that the plaintiff was entitled to recover from the defendant the sum of \$26,323.45.

It appears from the evidence that from March 10th to March 30th, 1910, the defendant made such a final test of its said apparatus as was provided for in the contract of July 12th, 1909, and that during said test, and at all times, the plaintiff fully performed all the conditions and obligations on its part to be performed under said contract; that during said final test the said apparatus, without any fault on the part of the plaintiff, failed to produce for 20 consecutive days an average of at least 2,000,000 cubic feet of gas per 24 hours; and did, during said test, fail to produce gas with a consumption of not more than 35 pounds of lamp-black fuel containing not more than 10 per cent of moisture, per thousand cubic feet of gas made; and that said apparatus, during said final test, failed to produce a good, commercial gas having an average candle-power of not less than 20 candles.

The evidence further shows that after the said test of the said apparatus, the plaintiff demanded that the

defendant pay to the plaintiff the sum of \$26,323.45, which the defendant has at all times refused to do; and that under and by virtue of the said contract of July 12th, 1909, the plaintiff was entitled to recover from the defendant the said sum of \$26,323.45. [822]

LIV.

The Court erred in failing to enter judgment against the said defendant and in favor of the plaintiff for the sum of \$28,323.45.

It appears from the evidence that from March 10th to March 30th, 1910, the defendant made such a final test of its said apparatus, as provided for in the contract of July 12th, 1909; that during said test, and at all times, the plaintiff fully performed all the conditions and obligations on its part to be performed under said contract; that during said final test the said apparatus, without any fault on the part of the plaintiff, failed to produce for 20 consecutive days an average of at least 2,000,000 cubic feet of gas per 24 hours, and did, during said test, fail to produce gas with a consumption of not more than 35 pounds of lamp-black fuel, containing not more than 10 per cent of moisture, per thousand cubic feet of gas made, and that said apparatus during said final test failed to produce a good, commercial gas having an average candle-power of not less than twenty candles.

The evidence further shows that after the said test of said apparatus, the plaintiff demanded that the defendant pay to the plaintiff the sum of \$26,323.45, which the defendant refused and has at all times so refused to do; that the plaintiff did at said time demand that the defendant remove its apparatus from

the premises of said plaintiff, which the defendant at all times refused to do; and that the reasonable cost of removing said apparatus was \$2,000, and that under and by virtue of the contract of July 12th, 1909, the plaintiff was entitled to recover the sum of \$28,-323.45 from the said defendant. [823]

LV.

The Court erred in failing to enter judgment against the said defendant and in favor of the said plaintiff in the sum of \$26,323.45.

It appears from the evidence that from March 10th to March 30th 1910, the defendant made such a final test of its said apparatus as provided for in the contract of July 12th, 1909, and that during said test, and at all times herein, the plaintiff fully performed all the conditions and obligations on its part to be performed under said contract; that during said final test the said apparatus, without any fault on the part of the plaintiff, failed to produce for 20 consecutive days an average of at least 2,000,000 cubic feet of gas per 24 hours, and did during said test fail to produce gas with a consumption of not more than 35 pounds of lamp-black fuel containing not more than 10 per cent of moisture per thousand cubic feet of gas made; and that said apparatus during said final test failed to produce a good, commercial gas having an average candle-power of not less than twenty candles.

The evidence further shows that after the said test of said apparatus, the plaintiff demanded that the defendant pay to the plaintiff the sum of \$26,323.45, which the defendant refused at all times so to do, and that under and by virtue of the contract of July 12th.

1909, the plaintiff was entitled to recover from the defendant the said sum of \$26,323.45. [824]

LVI.

The Court erred in failing to find that the lamp-black fuel furnished by the plaintiff to the defendant, during said final test, was fuel in accordance with the contract of July 12th, 1909.

It appears from the evidence, as set forth in assignment of error No. XXXII, that all of the lamp-black fuel which was furnished to the defendant by the plaintiff, during said final test from the 10th to the 30th of March, 1910, for use in its said apparatus, was fuel in accordance with the contract of July 12th, 1909.

The statements as to what the evidence showed in this regard, contained in said assignment of error No. XXXII, are made a part hereof with the same force and effect as if set forth in detail herein. [825]

LVII.

The Court erred in failing to find that the operation of said water-gas apparatus by the defendant during the period from March 10th to March 30th, 1910, was a final test of said apparatus as contemplated and provided for in said contract of July 12th, 1909.

It appears from the evidence that the operation of said water-gas apparatus by the defendant during the period from March 10th to March 30th, 1910, was a final test of said apparatus as contemplated and provided for in said contract of July 12th, 1909; that prior to the commencement of said final test, the defendant notified the plaintiff in writing that on the

10th day of March, 1910, it would commence the final test of its apparatus; that on the said 10th day of March, 1910, the defendant did commence said final test, and did operate said apparatus continuously for the next twenty days; and that during said test the plaintiff, at all times, furnished the defendant with operating conditions and fuel in accordance with the contract of July 12th, 1909, and in all other respects fully complied with the conditions and obligations of the said contract of July 12th, 1909. [826]

LVIII.

The Court erred in failing to find that the defendant during said final test of said apparatus from March 10th to March 30th, 1910, inclusive, failed to bring its said water-gas apparatus to an established capacity, as provided in said contract of July 12th, 1909, of at least 2,000,000 cubic feet of gas per 24 hours.

The evidence shows that during the final test of said apparatus from March 10th to March 30th, 1910, the defendant failed to bring its said apparatus to an established capacity, as provided in said contract of July 12th, 1909, of at least 2,000,000 cubic feet of gas per 24 hours; and that said failure was not due to any fault of the plaintiff; that the operation of said apparatus during said period was such a final test of said apparatus as in said contract of July 12th, 1909 provided; and that said plaintiff at all times fully performed all conditions upon its part to be performed under said contract. [827]

LIX.

The Court erred in failing to find that during said

period, to wit, from March 10th to March 30th, 1910, said defendant failed to bring said apparatus to an established capacity of producing gas with a consumption of not more than 35 pounds of lamp-black fuel per thousand cubic feet of gas made.

The evidence shows that from March 10th to March 30th, 1910, the said apparatus was operated under and according to the terms of the contract of July 12th, 1909, in a final test of said apparatus; that during said test the plaintiff at all times performed all the conditions and obligations upon its part to be performed under said contract; and that said apparatus, during said final test, and without any fault on the part of the plaintiff, failed to reach an established capacity, as in said contract provided, in producing gas with a consumption of 39 pounds of lamp-black fuel per thousand cubic feet of gas made.

[828]

LX.

The Court erred in failing to find that during said final test of said apparatus from March 10th to March 30th, 1910, inclusive, the defendant failed to bring said apparatus to an established capacity of producing during said period gas of an average candle-power of at least 20 candles.

It appears from the evidence that from March 10th to March 30th, 1910, inclusive, the defendant operated said apparatus in a final test, as in said contract of July 12th, 1909 provided; that during said test the plaintiff at all times performed all conditions and obligations upon its part under said contract; that during said test the defendant, without any fault on the

part of the plaintiff, failed to bring said apparatus to a capacity of producing, during said period, gas of an average candle-power of at least 20 candles.

[829]

LXI.

The Court erred in failing to find that the plaintiff had at all times performed all the conditions and obligations imposed upon it by and under the said contract of July 12th, 1909.

It appears from the evidence that the plaintiff at all times performed all the conditions and obligations imposed upon it by and under said contract of July 12th, 1909. It further appears from the evidence, and was admitted by the defendant, that the plaintiff, performed all the conditions upon its part to be performed under said contract, with the sole exception that the lamp-black fuel furnished by the plaintiff to the defendant during the final test of defendant's said apparatus did not possess the tensile strength and solidity required of it under the contract of July 12th, 1909.

As to the said lamp-black fuel, however, the evidence shows that the said fuel was fuel of the same character, and even better than the lamp-black fuel which had been furnished to the defendant by the plaintiff's assignor for two years prior to July 12th, 1909; that it was lamp-black fuel possessing all of the qualities which the parties contemplated that it should possess at the time the said contract of July 12th, 1909, was entered into, and that said lamp-black fuel had as great a tensile strength and solidity as [830] was possible for the same to possess.

The evidence further shows that in manufacturing the lamp-black fuel furnished to the defendant during the final test of its said apparatus the plaintiff used the most modern processes, and that it was the only concern in the United States producing lamp-black fuel of the character herein referred to; that prior to the final test of said apparatus, the defendant notified the plaintiff that the fuel which the plaintiff later supplied to the defendant was satisfactory to the defendant in every respect for the final test of said apparatus. The evidence shows that the defendant was aware at all times of the fuel which the plaintiff intended to furnish to it during said final test, and had examined and tested the same and reported that it was satisfactory; that the defendant at no time complained of the tensile strength of the fuel furnished to it during said final test, except from about the 20th of March, 1910, until the finish of said test.

The evidence further shows that during the said final test the plaintiff furnished to the defendant the best possible fuel in its possession, and the only fuel which was possible for plaintiff to obtain or manufacture; and that all of the fuel furnished to the defendant during said final test was fuel having the tensile strength and solidity, and every other quality and characteristic provided for under the contract of July 12th, 1909.

WHEREFORE, said Los Angeles Gas and Electric Corporation, plaintiff and appellant, prays that the judgment of the Circuit [831] Court of the United States for the Southern District of Cali-

fornia, Southern Division, be reversed, and that the said court be directed to grant a new trial in said cause.

WM. A. CHENEY.

HERBERT J. GOUDGE,

LEROY M. EDWARDS,

Attorneys for the Los Angeles Gas and Electric Corporation, Plaintiff in Error.

[Endorsed]: C. C. No. 1558. U. S. District Court, Southern District of California Southern Division. Los Angeles Gas and Electric Corporation, a Corporation, vs. The Western Gas Construction Company, a Corporation. Assignment of Errors. Filed Mar. 25, 1912. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. [832]

*In the District Court of the United States, in and for
the Southern District of California, Southern
Division.*

LOS ANGELES GAS AND ELECTRIC COR-
PORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COM-
PANY, a Corporation,

Defendant.

**Order Allowing Writ of Error and Fixing
Supersedeas Bond.**

The above-named plaintiff, Los Angeles Gas and Electric Corporation, a corporation, having this day filed its petition for a writ of error from the judg-

ment made and entered herein, to have the same reviewed by the United States Circuit Court of Appeals for the Ninth Judicial Circuit, together with an assignment of errors within due time, and also praying that an order be made fixing the amount of security which said plaintiff should give and furnish upon said writ of error, and that upon the giving of said security all further proceedings of this court be suspended and stayed until the determination of said writ of error by the said United States Circuit Court of Appeals for the Ninth Circuit:

Now, therefore, it is ordered that a writ of error be and is hereby allowed, to have reviewed in the United States Circuit Court of Appeals for the Ninth Circuit, the judgment heretofore entered herein, and that the amount of bond upon said writ of error be and hereby is fixed at \$250, and upon the filing of said bond according to law, and the approval thereof by the Court, all further proceedings in the court be suspended and stayed until the determination of said [833] writ of error by the said United States Circuit Court of Appeals, and filing and approval of said bond to act as a supersedeas in the premises.

Dated March 25, 1912.

OLIN WELLBORN,
Judge.

[Endorsed]: C. C. No. 1558. Dept. In the District Court of the United States in and for the Southern District of California. Los Angeles Gas and Electric Corporation, a Corporation, Plaintiff, vs. The Western Gas Construction Company, a Corporation, Defendant. Order Allowing Writ of Error

and Fixing Supersedeas Bond. Filed Mar. 25, 1912.
Wm. M. Van Dyke, Clerk. By Chas. N. Williams,
Deputy Clerk. Wm. A. Cheney, Herbert J. Goudge,
LeRoy M. Edwards, 645 South Hill Street, Room 31,
Los Angeles, Cal., Attorneys for Plaintiff. [834]

*In the United States Circuit Court of Appeals, Ninth
Judicial Circuit.*

LOS ANGELES GAS AND ELECTRIC COR-
PORATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COM-
PANY, a Corporation,

Defendant.

Bond on Writ of Error.

KNOW ALL MEN BY THESE PRESENTS:

That we, Los Angeles Gas and Electric Cor-
poration, a corporation, as principal, and the
United States Fidelity and Guaranty Company,
a corporation, organized and existing under and
by virtue of the laws of the State of Maryland,
and duly licensed and authorized by the State
of California to transact business as surety within
the said State of California, as surety, are held
and firmly bound unto The Western Gas Con-
struction Company, a corporation, defendant above
named, in the sum of \$250 to be paid to the said
Western Gas Construction Company, for which pay-
ment well and truly to be made we bind ourselves,
and each of us, jointly and severally, and our and

each of our successors, representatives or assigns, firmly by these presents.

Sealed with our seals and dated the 25th day of March, 1912.

The condition of the above obligation is such that whereas the above-named plaintiff, Los Angeles Gas and Electric Corporation, a corporation, has sued out a writ of error to the United States Circuit Court of Appeals for the Ninth Circuit to reverse the judgment in the above-entitled cause by the Circuit Court of the United States for the Ninth Circuit, Southern District of California, Southern Division, therein rendered on the 6th day of November, 1911.

Now, therefore, the condition of this obligation is such that if the above-named Los Angeles Gas and Electric Corporation, [835] a corporation, shall prosecute said writ to effect, and answer all costs and damages if it shall fail to make good its appeal, then this obligation to be void; otherwise to remain in full force and effect.

LOS ANGELES GAS AND ELECTRIC
CORPORATION.

By R. M. ADAMS, Secy.
THE UNITED STATES FIDELITY AND
GUARANTY COMPANY.

By FRANK M. KELSEY,
Its Attorney in Fact.

Bond approved this 25th day of March, 1912.

OLIN WELLBORN,
Judge.

State of California,
County of Los Angeles,—ss.

On this 25th day of March, in the year one thousand nine hundred and twelve, before me, Hallie D. Winebrenner, a notary public in and for said county and State, residing therein, duly commissioned and sworn, personally appeared Frank M. Kelsey, known to me to be the duly authorized attorney in fact of The United States Fidelity and Guaranty Company, and the same person whose name is subscribed to the within instrument as the attorney in fact of said company, and the said Frank M. Kelsey duly acknowledged to me that he subscribed the name of The United States Fidelity and Guaranty Company thereto as principal and his own name as attorney in fact.

In witness whereof, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

[Seal] HALLIE D. WINEBRENNER,
Notary Public in and for Los Angeles County, State
of California. [836]

[Endorsed]: C. C. No. 1558. In the United States Circuit Court of Appeals, Ninth Judicial Circuit. Los Angeles Gas and Electric Corp., a Corp., Plaintiff, v. The Western Gas Construction Company, a Corp., Def. Bond on Writ of Error. Filed Mar. 25, 1912. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. [837]

*In the District Court of the United States, Southern
District of California, Southern Division.*

LOS ANGELES GAS AND ELECTRIC CORPO-
RATION, a Corporation,

Plaintiff,

vs.

THE WESTERN GAS CONSTRUCTION COM-
PANY, a Corporation,

Defendant.

**Stipulation and Order for Removal of Exhibits and
Transmission of Same to Circuit Court of
Appeals.**

The parties to the above-entitled action hereby stipulate and agree that the Clerk of the above-entitled court may remove from the above-entitled court and transmit to the Circuit Court of Appeals all of the following exhibits filed in the above cause, to wit: Exhibits No. Dep. Ex's "L." and "M."

WM. A. CHENEY,
HERBERT J. GOUDGE,
LEROY M. EDWARDS,
Attorneys for Pltf.
OSCAR A. TRIPPET,
WARD CHAPMAN,
Attorneys for Def.

So ordered.

OLIN WELLBORN,
Judge of the District Court.

Dated March 25th, 1912.

[Endorsed]: C. C. No. 1558. Dept. In the District Court of the United States, Southern District of California, Southern Division. Los Angeles Gas and Electric Corporation, Plaintiff, vs. The Western Gas Construction Company, Defendant. Stipulation and Order to Remove Exhibits. Filed Mar. 25, 1912. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. LeRoy M. Edwards, 814 H. W. Hellman Building, Phone F6204, Los Angeles, Cal., Attorney for Pltf. [838]

[Certificate of Clerk U. S. District Court to
Transcript of Record.]

In the District Court of the United States of America, in and for the Southern District of California, Southern Division.

No. 1558.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff,

vs.

WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant.

I, Wm. M. Van Dyke, Clerk of the District Court of the United States of America, in and for the Southern District of California, do hereby certify the foregoing eight hundred thirty-eight pages, numbered from 1 to 838, inclusive, and comprised in two volumes, to be a full, true and correct copy of the

pleadings and of all papers and proceedings upon which the judgment was made and entered in said cause, and also of the Judgment, Bill of Exceptions, Petition for Writ of Error, Assignment of Errors, Order Allowing Writ of Error, Bond on Writ of Error and stipulation and order for transmission of original exhibits, in the above and therein entitled cause, and that the same together constitute the record in said cause as specified in the Praeclipe filed in my office, on behalf of the plaintiff, by its attorneys of record.

I do further certify that the cost of the foregoing record is \$452.40, the amount whereof has been paid me by the Los Angeles Gas and Electric Corporation, the plaintiff in said cause.

In testimony whereof, I have hereunto set my hand and affixed the seal of the District Court of the United States of America, in and for the Southern District of California, Southern Division, this 17th day of July, in the year of our Lord, one thousand nine hundred and twelve, and of our Independence the one hundred and thirty-seventh.

[Seal]

WM. M. VAN DYKE,

Clerk of the District Court of the United States, in
and for the Southern District of California.

[839]

[Endorsed]: No. 2159. United States Circuit Court of Appeals for the Ninth Circuit. Los Angeles Gas and Electric Corporation, a Corporation, Plaintiff in Error, vs. The Western Gas Construction Company, a Corporation, Defendant in Error.

Transcript of Record. Upon Writ of Error to the United States District Court of the Southern District of California, Southern Division.

Filed July 19, 1912.

F. D. MONCKTON,
Clerk of the United States Circuit Court of Appeals
for the Ninth Circuit.

[Order Under Rule 16 Enlarging Time to September 1, 1912, to File Record Thereof, and to Docket Case.]

In the United States Circuit Court of Appeals, Ninth Judicial Circuit.

LOS ANGELES GAS AND ELECTRIC CORPORATION, a Corporation,

Plaintiff in Error,
vs.

THE WESTERN GAS CONSTRUCTION COMPANY, a Corporation,

Defendant in Error.

Good cause appearing therefor, it is hereby ordered that the time heretofore allowed said plaintiff in error to docket said cause and file the record thereof with the Clerk of the United States Circuit Court of Appeals for the Ninth Circuit, be and the same is hereby enlarged and extended to and including the 1st day of September, 1912.

Dated at Los Angeles, April 18th, 1912.

OLIN WELLBORN,
United States District Judge, for the Southern District of California.

[Endorsed]: No. 2159. United States Circuit Court of Appeals for the Ninth Circuit. Order Under Rule 16 Enlarging Time to September 1, 1912, to File Record Thereof and to Docket Case. Filed Apr. 19, 1912. F. D. Monckton, Clerk. Refiled Jul. 19, 1912. F. D. Monckton, Clerk.

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